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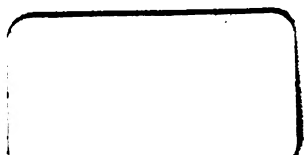
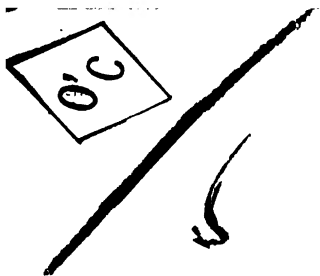
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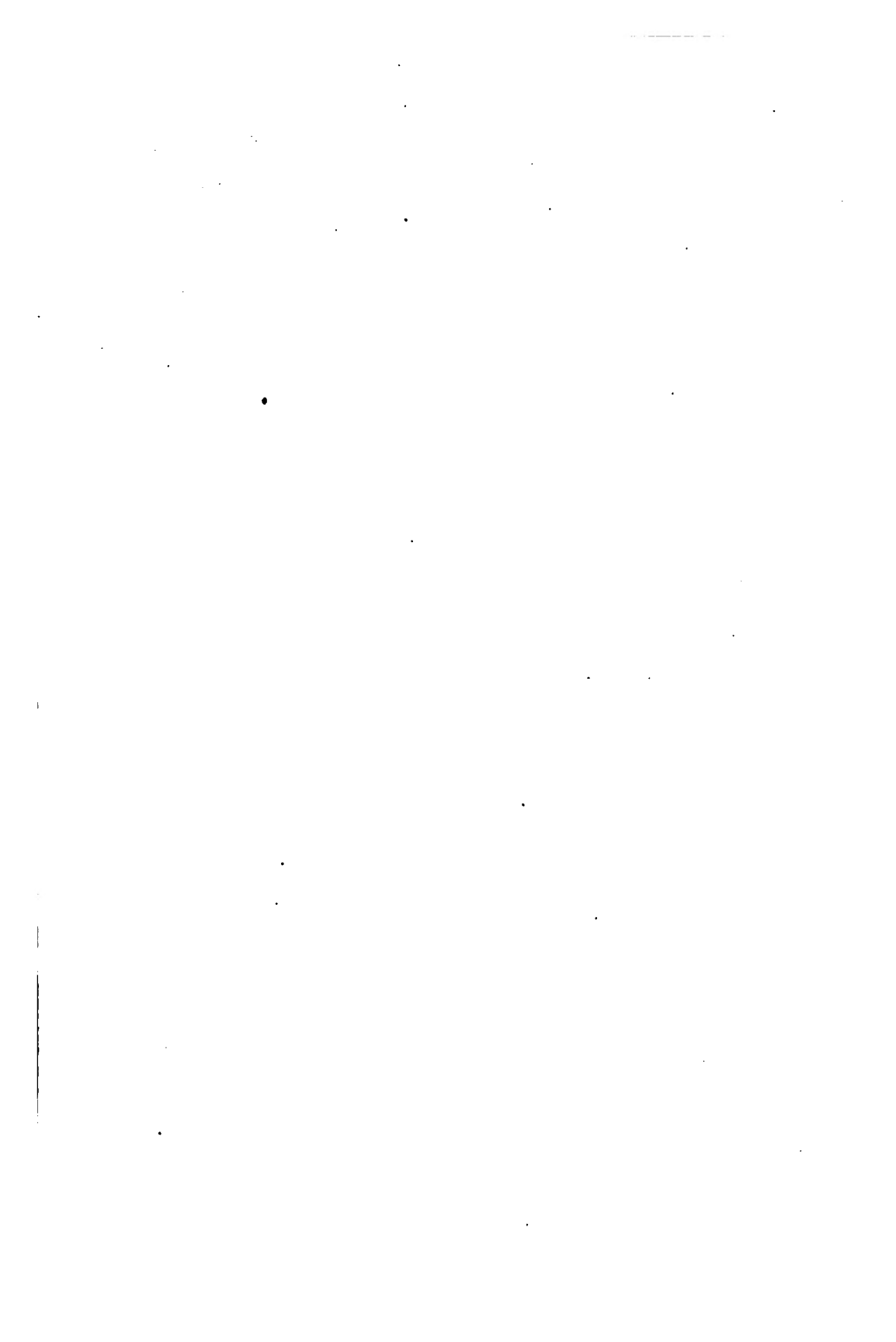
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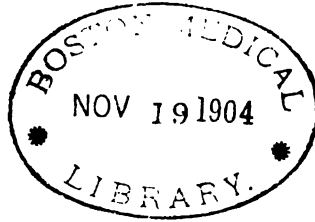
PROCEEDINGS
OF THE
CONNECTICUT MEDICAL SOCIETY,
1904.

ONE HUNDRED AND TWELFTH
ANNUAL CONVENTION,
HELD AT
NEW HAVEN, MAY 25TH AND 26TH.

PUBLISHED BY THE SOCIETY.

SAMUEL B. ST. JOHN, M.D.,
WILLIAM H. CARMALT, M.D.,
N. E. WORDIN, M.D.,
Publication Committee.

1904.



The Connecticut Medical Society does not hold itself responsible for the opinions contained in any article, unless such opinions are endorsed by special vote.

All communications intended for the Connecticut Medical Society must be addressed to N. E. Wordin, M.D., Bridgeport, Conn.

The next Annual Meeting of the Connecticut Medical Society will be held in Hartford, May 24th and 25th, 1905.



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OFFICERS OF THE SOCIETY.

1904—1905

PRESIDENT.

WILLIAM H. CARMALT, New Haven.

VICE-PRESIDENT.

EDWARD H. WELSH, West Winsted.

VICE-PRESIDENTS, ex-officio.

**GEORGE R. SHEPHARD,
SAMUEL D. OTIS,
GEORGE R. HARRIS,
AMOS AVERY,
FREDERIC SCHAVOIR,
GEORGE H. KNIGHT,
CHARLES E. STANLEY,
WILLIAM C. HAVEN.**

TREASURER.

W. W. KNIGHT.

SECRETARY.

N. E. WORDIN.

ASSISTANT SECRETARY.

H. S. MILES.

**COMMITTEE ON MATTERS OF PROFESSIONAL INTEREST IN
THE STATE.**

F. A. MORRELL, L. B. ALMY, WILLIAM PORTER, Jr.

STANDING COMMITTEES.

Committee to Nominate Physicians to the Retreat for the Insane.

H. L. SWAIN, T. F. ROCKWELL, J. M. KENISTON,
H. L. HAMMOND, A. R. DIEFENDORF.

Committee on Legislation.

L. S. PADDOCK, E. F. PARSONS, N. E. WORDIN,
E. J. McKNIGHT, Hartford County.
C. S. RODMAN, New Haven County.
F. N. BRAMAN, New London County.
J. W. WRIGHT, Fairfield County.
J. B. KENT, Windham County.
ELIAS PRATT, Litchfield County.
F. K. HALLOCK, Middlesex County.
C. B. NEWTON, Tolland County.

Committee on Medical Examination.

WALTER L. BARBER,
CHARLES A. TUTTLE,
HORACE S. FULLER,
SAMUEL M. GARLICK,
J. FRANCIS CALEF.

On Honorary Members and Degrees.

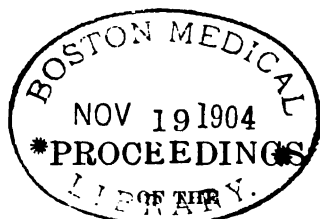
J. W. WRIGHT, C. C. GILDERSLEEVE, H. S. FULLER.

Committee on Publication.

S. B. ST. JOHN,
W. H. CARMALT,
N. E. WORDIN.

Committee on Arrangements.

W. T. BACON, W. R. STEINER, E. R. LAMPSON.



CONNECTICUT MEDICAL SOCIETY,
ONE HUNDRED AND TWELFTH ANNUAL MEETING.

The President and Fellows of the Connecticut Medical Society met in the building of the Young Men's Republican Club, New Haven, Wednesday afternoon, May twenty-fifth, 1904, and were called to order at 2:15 o'clock by the President. The Committee on Credentials reported, the Secretary calling the roll with the following result:

FELLOWS, *ex-officio*.

President.

S. B. ST. JOHN,

Vice-President.

W. H. CARMALT,

Presidents of County Associations.

*GEORGE R. SHEPHARD,

*SAMUEL D. OTIS,

GEORGE R. HARRIS,

*FREDERIC SCHAVIOR,

AMOS AVERY,

*GEORGE H. KNIGHT,

CHARLES E. STANLEY,

WILLIAM C. HAVEN.

Secretary.

N. E. WORDIN.

Assistant Secretary.

*H. S. MILES.

Treasurer.

W. W. KNIGHT.

Committee on Matters of Professional Interest in the State.

*C. J. FOOTE,

*L. B. ALMY,

*F. A. MORRELL.

*Absent

FELLOWS ELECTED BY COUNTIES.

Hartford County.

Harmon G. Howe,
Edward K. Root,

William T. Bacon,
‡A. E. Abrams,

S. W. Irving.

New Haven County.

William F. Verdi,
M. Mailhouse,

O. T. Osborne,
E. S. Moulton,

T. M. Bull.

New London County.

*C. B. Graves,
*R. R. Gandy,

W. H. Gray,
William Witter.

*E. C. Chipman.

Fairfield County.

A. E. Barber,
*H. E. Smyth,

S. H. Huntington,
D. B. Wason,

E. M. Smith.

Windham County.

S. B. Overlock,
T. Morton Hills,

Rienzi Robinson,
C. M. Knight,

F. E. Guild.

Litchfield County.

E. H. Welch,
* E. K. Loveland,

Elias Pratt,
Robert Hazen,

S. G. Howd.

Middlesex County.

F. D. Edgerton,
J. Francis Calef,

‡A. J. Campbell,
A. R. Diefendorf,

J. E. Loveland.

Tolland County.

Eli P. Flint,

Edwin T. Davis,

William L. Higgins.

† Alternate for Dr. Taft. 0 Alternate for Dr. Tukey * Absent. ‡ Al-
ternate for Dr. Mountain. x Alternate for Dr. Hayes. 10

The record showed a full delegation for Hartford, New Haven, Fairfield, Windham, Litchfield, Middlesex and Tolland counties, leaving only one county incomplete. This is an unusual showing and indicates the interest in the proposed Constitution and By-Laws. The President then read his address to the Fellows.

ADDRESS TO THE FELLOWS.

FELLOWS OF THE CONNECTICUT MEDICAL SOCIETY.

Gentlemen:—

It is my privilege as well as duty to welcome you to the one hundred and twelfth annual convention of the Connecticut Medical Society, and to preside over your deliberations for its welfare. I desire to express my appreciation of the honor and to assure you that I will do my best to assist your efforts to advance the interests of the organization.

In one respect, at least, the meeting may prove to be an epoch-making one. The repeated efforts which for many years have been made to amend our By-Laws have shown that there was a deep-seated conviction that they were not suited to the present time and the result of the various changes has been to compel us to do business under a set of rules that was imperfect, unsatisfactory and at points inconsistent. Certain Committees—like that on Matters of Professional Interest in the State—have been found to have lost their original importance owing to changed conditions. Impressed with this conviction the Society in 1901 appointed a Committee to revise the By-Laws, which Committee in 1902 reported that it favored the acceptance of the Constitution and By-Laws proposed by the American Medical Association, but that, pending legislation necessary to take this action they recommended the adoption of some twenty-five amendments to our present By-Laws. This was referred to the Committee on Unfinished Business of last year, which recommended the appointment of a Special Committee whose report should be submitted to the

County Societies for their action prior to the meeting of 1904, and added that the Committee (of 1903) favored the adoption of the Constitution and By-Laws of the American Medical Association, with certain revisions. The special committee appointed last year, therefore undertook this work of revision and it is the report of this special committee that will bring this matter before you for action to-day. As a member of that committee I may say that a comparatively small amount of revision was necessary to bring it into harmony with our requirements which was, perhaps, to be anticipated from the fact that the American Medical Association modeled its pattern more largely after our own Constitution and By-Laws than after that of any other state.

The Legislative Council of the American Medical Association at a meeting held February eleventh, 1904, at Washington, passed the following resolution:

Whereas, the well-known unsanitary condition prevailing on the Isthmus of Panama, as shown by the large percentage of sickness and death among the laborers engaged in the previous work on the Panama Canal, and in view of the fact that the successful prosecution of future work on the Canal must largely depend upon the sanitary administration, which includes the prevention of sickness and the saving of the lives of the laborers, quite as much as upon the solution of the great engineering problem: therefore

Resolved, That a representative of the medical profession who is an authority upon the advanced methods of investigating the causes and of the prevention of disease, should be appointed a member of the Panama Canal Commission, that he may have authority to protect the health and thereby save the lives of persons engaged to work on the proposed Panama Canal.

CHARLES A. L. REED, Chairman.

JAMES B. SANFORD, Secretary.

In furtherance of this idea, circulars were sent to all the State Medical Presidents, urging that they write to the President of the United States and to their Senators. This was done by your President and courteous replies were received. Most of you know that the attempt was not successful. One of our Senators wrote that while he thought it ought to be, he was not sure that the law establishing the commission was so worded as to permit of it. The effect, however, of this pressure exerted through channels purely medical, was such, that one of the first acts of the Commission after organizing was to appoint Col. Gorgas, U. S. A., whose appointment as a Commissioner we had been urging, to be chief of the Medical Department of the Commission. Therefore, though the original attempt failed, we may congratulate ourselves that there was a partial success of this effort to prove that united, organized action of the medical profession throughout the country can effect something in matters of National importance.

Throughout the winter your President has been bombarded with circulars about the American Congress on Tuberculosis which is to meet at St. Louis this year, asking that delegates be appointed by this Society. Inasmuch as your late President Dr. Shelton appointed a goodly list of delegates to represent us at the Tuberculosis Congress that is to meet at Washington next year, I did not think best to comply with the request but decided to lay the matter before you for your action.

A question has arisen regarding the use of the Seal of the Society. Some of the candidates for license to practice who have been successful before our Board of Examiners, wish to have a certificate from that Board, embellished with the Seal of the Society. It seems to me appropriate that the Seal should be so affixed and if you agree in that, it will be necessary that our Secretary, who is the custodian of the Seal should be instructed as to

the details of the matter. The Society might authorize the Board to issue such certificates or Diplomas and to send them to the Secretary for sealing, or some other plan may be thought best.

In September of last year, I received a request from Dr. Billings, President of the American Medical Association, to nominate a member of the American Medical Association to act as a member of the Auxiliary Committee on Medical Legislation. I named Dr. E. J. McKnight, who attended a meeting held in Washington and who will present a report of the action there taken.

Dr. W. W. Keen, of Philadelphia, Chairman of a Committee of the American Medical Association, appointed to raise \$20,000 for a memorial to the late Dr. Walter Reed, U. S. A., in commemoration of his remarkable services both professionally and humanitarian in reference to yellow fever, asks that this subject be brought to the attention of this Society at the present meeting and measures taken to raise as large a sum as possible.

The following communication has been received from the Mississippi Valley Medical Association, with request that the resolutions therein contained, be brought before the Society for endorsement.

At the Twenty-ninth Annual Session of the Mississippi Valley Medical Association held at Memphis, October 7-9, 1903, the following resolutions were adopted:

In view of the fact that more than 400 deaths from Tetanus occurred following the 4th of July celebration of 1903, as shown by the statistical report elaborated by Dr. S. C. Stanton, of Chicago, and published in the Journal of the American Medical Association of August 29, 1903, the great majority of which might have been prevented had proper precautions been taken; therefore.

Be it Resolved, That the conclusions which follow, as offered by Dr. Stanton in a paper presented before the

Association, at the above meeting, be endorsed as the sense of the Association, and further

Be it Resolved, That the Secretary be instructed to forward a copy of these resolutions and conclusions to the Medical Press, Associated Press, and the Secretaries of the several State Medical Societies, with the request that they publish same and take suitable action thereon.

1. Enforcement of existing laws regarding the sale of Toy Pistols and other dangerous toys.

2. Enactment of laws by the nation, states and municipalities prohibiting the manufacture and sale of Toy Pistols, Blank Cartridges, Dynamite Cans and Caps, Cannon Crackers, etc.

3. Open treatment of all wounds, however insignificant, in which from the nature or environment there is any risk of Tetanus.

4. Immediate use of Tetanus Antitoxin in all cases of Fourth of July wounds, or wounds received in barnyards, gardens, or other places where Tetanus infection is likely to occur.

5. As a forlorn hope, the injection of Tetanus Antitoxin after Tetanus symptoms have appeared.

Perhaps the resolutions are not satisfactory as a whole. It seems to me that 1, 2 and 3 are sound, but I think there will be some objection to 4 and 5. I suggest that the Society place itself on record on the subject.

The Committee on Honorary Members of last year recommended the name of Prof. William Osler of Baltimore to be acted on this year. The Society will honor itself by placing the name of this distinguished physician upon its roll of Honorary Members.

From the Kentucky State Medical Association comes the following statement, which I lay before you as requested.

Some half dozen of the States have already begun the

publication of a State Journal and it seems probable that in the near future many more will undertake the same thing. Therefore, action along this line would seem appropriate at this time. It is desired that the president of your State Association should be made acquainted with what is intended and that the matter should be brought before the annual meeting of your State Society with the request that a delegate be appointed to meet in Atlantic City on June 6th, to discuss the matter, effect organization if it is deemed by a majority of those present to be advisable, and to perfect details of such arrangement.

Please send me the name of delegate, if one be appointed.

JAMES B. BUTTITT,

Secretary Ky. St. Medical Assoc.

Since our last annual meeting we have lost six of our members. Drs. W. L. Bradley, R. L. Griggs, R. S. Goodwin, J. W. Gordon, R. C. Downey and Samuel Lathrop, have passed over to the silent majority. Our memorial pages will contain sketches of their lives and work by those who knew them best. I will only remind you that Dr. Goodwin was President of this Society only seven years ago. His address to the Convention on the importance of Bacteriology in Medicine showed that he was in the front ranks of progressive physicians, ready to adopt new ideas, when satisfactorily proved, even though they prove subversive of old established theories. We also have received notice of the deaths of Andrew J. Fuller and Arthur Ward, on the list of our Honorary Members.

I now declare the one hundred and twelfth annual meeting of the President and Fellows of the Connecticut Medical Society open for the transaction of such business as may be brought forward.

The Regular Committees were then announced:

On Credentials.

N. E. Wordin,

W. T. Bacon.

On Unfinished Business.

E. K. Root,

M. Mailhouse,

S. H. Huntington,

J. F. Calef,

R. Robinson.

On County Resolves.

S. G. Howd,

F. E. Guild,

R. R. Gandy.

To Nominate Essayists on the Progress of Medicine and Surgery.

A. R. Diefendorf,

E. M. Smith,

E. T. Davis.

Nominating Committee.

H. G. Howe,

W. F. Verdi,

C. B. Graves,

A. E. Barber,

S. B. Overlock,

E. H. Welch,

F. D. Edgerton,

Eli P. Flint.

Auditing.

T. M. Hills,

W. C. Haven.

Reception of Delegates and Guests.

S. D. Gilbert,

W. G. Daggett,

F. H. Wheeler.

The Committee on Unfinished Business was the first one called upon under the general order. They reported that they had nothing to do.

The Committee on Business reported that the Proceedings had been printed, eight hundred and twenty-five volumes and that copies had been sent to the Active and Honorary Members, to the Secretaries of all the State Societies and to some of the principal libraries of the country. They presented also the program as printed with the statement that changes must necessarily be made in it according to circumstances.

Reports of Special Committees came next in order and the first one called upon was the

COMMITTEE ON ADOPTING CONSTITUTION AND BY-LAWS
PROPOSED BY THE AMERICAN MEDICAL ASSOCIATION.

Dr. McKnight, chairman: Mr. President, and Fellows of the Society. You are all familiar with what took place in regard to the proposed constitution at our last annual meeting. As already stated by the President, we have had several meetings, and you have all received copies of the report of the committee. I have arranged the changes so that you can see the Constitution and By-Laws as they would appear if printed in full. Is it your pleasure to go through the whole Constitution and By-Laws, article by article?

The President: I think it would be better.

Dr. Mailhouse: I move that each article be taken up separately and acted upon.

Dr. McKnight read Article I of the Constitution)

ARTICLE I.—NAME OF THE ASSOCIATION.

The name and title of this Organization shall be the Connecticut Medical Association.

A Delegate: Mr. President, I would like to ask whether our Charter does not compel us to retain the old name as it stands at present?

Dr. McKnight: The whole constitution will have to be amended by the Legislature before it can become operative.

Before I proceed I want to state that this report was the unanimous report of all the members of the committee who attended any of the meetings. A meeting was called at 1:45 to-day to consider any possible changes which might be suggested. A member of the committee who has not previously attended any meetings was present and objected and wished me to note his objection here before you, that the report of the committee is not

unanimous in favor of the adoption of this constitution. A member from Middlesex County objected first on the ground that we would not get under this constitution as great a representation in the American Medical Association, which is entirely incorrect. It makes no difference. What the other objections are I don't know. They may be brought out in the discussion which follows. I simply wished to make this statement before proceeding further.

Article I was unanimously accepted and adopted.

ARTICLE II.—PURPOSES OF THE ASSOCIATION.

The purposes of this Association shall be to federate and bring into one compact organization the entire medical profession of the State of Connecticut, and to unite with similar societies of other States to form the American Medical Association; to extend medical knowledge and advance medical science; to elevate the standard of medical education, and to secure the enactment and enforcement of just medical laws; to promote friendly intercourse among physicians; to guard and foster the material interests of its members and to protect them against imposition; and to enlighten and direct public opinion in regard to the great problems of State medicine, so that the profession shall become more capable and honorable within itself, and more useful to the public, in the prevention and cure of disease, and in prolonging and adding comfort to life.

ARTICLE III.—COMPONENT SOCIETIES.

Component Societies shall consist of those county medical societies which hold charters from this Association.

Articles II and III unanimously adopted.

ARTICLE IV.—COMPOSITION OF THE ASSOCIATION.

Section 1.—This Association shall consist of Members, Delegates and guests, was amended by adding "and Honorary Members."

Sec. 2.—Members. The Members of this Association shall be the members of the component county medical societies.

Sec. 3. Delegates. Delegates shall be those members who are elected in accordance with this Constitution and By-Laws to represent their respective component societies in the House of Delegates of this Association.

Sec. 4. Guests. Any distinguished physician not a resident of this State who is a member of his own State Association may become a guest during any Annual Session on invitation of the officers of this Association, and shall be accorded the privilege of participating in all of the scientific work for that Session.

The article was further amended by adding:

Sec. 5. Honorary Members. Eminent physicians, not residents of this State, may be elected Honorary Members by a major vote of the House of Delegates after nomination of one year, but such shall not exceed three in any one year.

Honorary Members shall have all the privileges accorded by Sec. 4 to Guests.

The article was then unanimously adopted.

Articles V and VI were then read:

ARTICLE V.—HOUSE OF DELEGATES.

The House of Delegates shall be the legislative and business body of the Association, and shall consist of (1) Delegates elected by the component county societies, (2) the Councilors, and (3), *ex-officio*, the President and Secretary of this Association.

ARTICLE VI.—COUNCIL.

The Council shall consist of the Councilors, and the President and Secretary, *ex-officio*. Besides its duties mentioned in the By-Laws, it shall constitute the Finance Committee of the House of Delegates. Five Councilors shall constitute a quorum.

Action on the adoption of these articles was temporarily postponed.

ARTICLE VII.—SECTIONS AND DISTRICT SOCIETIES.

The House of Delegates may provide for a division of the scientific work of the Association into appropriate Sections, and for the organization of such Councilor District Societies as will promote the best interests of the profession, such societies to be composed exclusively of members of component county societies.

ARTICLE VIII.—SESSIONS AND MEETINGS.

Section 1. The Association shall hold an Annual Session, during which there shall be held daily General Meetings, which shall be open to all registered members.

Articles VII and VIII were unanimously adopted, adding after the word members in Article VIII, guests and honorary members.

ARTICLE IX.—OFFICERS.

Section 1. The officers of this Association shall be a President, three Vice-Presidents, a Secretary, a Treasurer, and — Councilors.

Sec. 2. The officers, except the Councilors, shall be elected annually. The President shall appoint the first Councilors, to serve for one year, or until their successors are elected. The terms of the elected Councilors shall be for three years, those first elected serving one, two and three years, as may be arranged. All of these officers shall serve until their successors are elected and installed.

Sec. 3. The officers of this Association shall be elected by the House of Delegates on the morning of the last day of the Annual Session, but no Delegate shall be eligible to any office named in the preceding section, except that of Councilor, and no person shall be elected to any such office who is not in attendance upon that An-

nual Session, and who has not been a member of the Association for the past two years.

Action on Article IX was postponed until the consideration of the By-Laws was had.

ARTICLE X.—RECIPROCITY OF MEMBERSHIP WITH
OTHER STATE SOCIETIES.

In order to broaden professional fellowship this Association is ready to arrange with other State Medical Associations for an interchange of certificates of membership, so that members moving from one State to another may avoid the formality of re-election.

ARTICLE XI.—FUNDS AND EXPENSES.

Funds shall be raised by an equal per capita assessment on each component society. The amount of the assessment shall be fixed by the House of Delegates, but shall not exceed the sum of \$2.00 per capita per annum, except on a four-fifths vote of the Delegates present. Funds may also be raised by voluntary contributions, from the Association's publications, and in any other manner approved by the House of Delegates. Funds may be appropriated by the House of Delegates to defray the expenses of the Association, for publications, and for such other purposes as will promote the welfare of the profession. All resolutions appropriating funds must be referred to the Finance Committee before action is taken thereon.

ARTICLE XII.—REFERENDUM.

Section 1. A General Meeting of the Association may, by a two-thirds vote of the members present, order a general referendum on any question pending before the House of Delegates, and when so ordered the House of Delegates shall submit such question to the members of the Association, who may vote by mail or in person, and, if the members voting shall comprise a majority of all the

members of the Association, a majority of such vote shall determine the question and be binding on the House of Delegates.

Sec. 2. The House of Delegates may, by a two-thirds vote of its members present submit any question before it to a general referendum, as provided in the preceding section, and the result shall be binding on the House of Delegates.

ARTICLE XIII.—THE SEAL.

The Association shall have a common Seal, with power to break, change or renew the same at pleasure.

Articles X, XI, XII and XIII were unanimously adopted, excepting that Article XI was amended by substituting three dollars for two dollars per capita.

ARTICLE XIV.—AMENDMENTS.

The House of Delegates may amend any article of this Constitution by a two-thirds vote of the Delegates present at any Annual Session, provided that such amendment shall have been presented in open meeting at the previous annual session, and that it shall have been published twice during the year in the bulletin or journal of this Association, or sent officially to each component society at least two months before the meeting at which final action is to be taken.

After some discussion concerning a re-arrangement of the wording of this article, a motion was made as follows:

Dr. Donaldson: It seems to me all those words about the bulletin or journal are superfluous. We have no bulletin or journal. We have the official proceedings which are published once a year, and it would be useless to publish them twice, as they are published for our present organization, not for the future. It seems to me we should strike out entirely the words "published twice during the year in the bulletin or journal of this

association." It will then read "It shall have been sent officially," etc.

Motion duly seconded.

Motion adopted unanimously, and article XIV was adopted as amended.

The Society then took up the consideration of the By-Laws.

BY-LAWS.

Chapter 1 read by Dr. McKnight.

CHAPTER I.—MEMBERSHIP.

Section 1. The name of a physician on the properly certified roster of members of a component society, which has paid its annual assessment, shall be prima facie evidence of membership in this Association.

Sec. 2. Any person who is under sentence of suspension or expulsion from a component society, or whose name has been dropped from its roll of members, shall not be entitled to any of the rights or benefits of this Association, nor shall he be permitted to take part in any of its proceedings until he has been relieved of such disability.

Sec. 3. Each member in attendance at the Annual Session shall enter his name on the registration book, indicating the component society of which he is a member. When his right to membership has been verified, by reference to the roster of his society, he shall receive a badge, which shall be evidence of his right to all the privileges of membership at that Session. No member shall take part in any of the proceedings of an Annual Session until he has complied with the provisions of this section.

Section 1 was amended by changing "which" to "who" and "his" to "its."

Dr. Carmalt moved to amend Section 3 by striking out all of Section 3 after the word "member" at the end of the first sentence.

After an interesting discussion the amendment was adopted, a rising vote being necessary to form a decision.

Chapter I as amended was then adopted.

Chapter II was then read.

CHAPTER II.—ANNUAL AND SPECIAL SESSIONS OF THE ASSOCIATION.

Section 1. The Association shall hold an Annual Session at such time and place as has been fixed at the preceding Annual Session by the House of Delegates.

Sec. 2. Special meetings of either the Association or of the House of Delegates shall be called by the President on petition of twenty delegates or fifty members.

Dr. McKnight: In Section 2 we thought that 20 delegates would be too many. It has been suggested by one of the members of the committee that it should be 10.

Dr. Carmalt: How many delegates are we going to have?

Dr. McKnight: 26.

Dr. Mailhouse: Even 10 is a large proportion.

Dr. Moulton: I move that 10 be inserted in the place of 20, and that Section 2 be adopted as amended.

Motion adopted and Chapter II was adopted as amended.

CHAPTER III.—GENERAL MEETINGS.

Section I. All registered members may attend and participate in the proceedings and discussions of the General Meetings and of the Sections. The General Meetings shall be presided over by the President or by one of the Vice Presidents, and before them shall be delivered the address of the President and the orations.

Sec. 2. The General Meeting may recommend to the House of Delegates the appointment of committees or commissions for scientific investigation of special interest and importance to the profession and public.

Chapter III was then adopted.

Chapter IV was read.

CHAPTER IV.—HOUSE OF DELEGATES.

Section 1. The House of Delegates shall meet at 2 p. m. on the day before that fixed as the first day of the annual session. It may adjourn from time to time as may be necessary to complete its business, provided, that its hours shall conflict as little as possible with the General Meetings. The order of business shall be arranged as a separate section of the program.

Sec. 2. Each component county society shall be entitled to send to the House of Delegates each year one delegate for every 100 members, and one for each major fraction thereof, but each component society which has made its annual report and paid its assessment as provided in this Constitution and By-Laws, shall be entitled to one delegate.

Sec. 3. Twenty delegates shall constitute a quorum.

Sec. 4. It shall, through its officers, Council and otherwise, give diligent attention to and foster the scientific work and spirit of the Association, and shall constantly study and strive to make each Annual Session a stepping stone to future ones of higher interest.

Section 5. It shall consider and advise as to the material interests of the profession, and of the public in those important matters wherein it is dependent upon the profession, and shall use its influence to secure and enforce all proper medical and public-health legislation, and to diffuse popular information in relation thereto.

Section 6. It shall make careful inquiry into the condition of the profession of each county in the State, and

shall have authority to adopt such methods as may be deemed most efficient for building up and increasing the interest in such county societies as already exist, and for organizing the profession in counties where societies do not exist. It shall especially and systematically endeavor to promote friendly intercourse among physicians of the same locality, and shall continue these efforts until every physician in every county of the State who can be made reputable has been brought under medical society influence.

Section 7. It shall encourage post-graduate and research work, as well as home study, and shall endeavor to have the results utilized and intelligently discussed in the county societies.

Section 8. It shall elect representatives to the House of Delegates of the American Medical Association in accordance with the Constitution and By-Laws of that body.

Section 9. It shall, upon application, provide and issue charters to county societies organized to conform to the spirit of this Constitution and By-Laws.

Section 10. In sparsely settled sections it shall have authority to organize the physicians of two or more counties into societies to be designated by hyphenating the names of two or more counties so as to distinguish them from district and other classes of societies, and these societies, when organized and chartered, shall be entitled to all the privileges and representation provided herein for county societies, until such counties may be organized separately.

Section 11. It shall divide the State into Councilor Districts, specifying what counties each district shall include, and, when the best interest of the Association and profession will be promoted thereby, organize in each a district medical society, and all members of component county societies, and no others, shall be members in such

district societies. When so organized, from the Presidents of such district societies shall be chosen the Vice-presidents of this Association, and the Presidents of the county societies of the district shall be the Vice-Presidents of such district societies.

Section 12. It shall have authority to appoint committees for special purposes from among members of the Association who are not members of the House of Delegates. Such committees shall report to the House of Delegates, and may be present and participate in the debate on their reports.

Section 13. It shall approve all memorials and resolutions issued in the name of the Association before the same shall become effective.

Upon motion of Dr. Keniston, it was voted that Chapter IV be discussed and voted upon section by section.

Upon motion of Dr. Moulton, Section 1 was unanimously adopted.

Dr. McKnight: I will say, Mr. President, that your committee spent a great deal of time upon Section 2, figuring out how to get as even a representation as possible. We tried 15, 20 and larger numbers, and it seemed that 35 offered the fairest, the most even and the best representation that could be possibly arrived at. That was done after a very careful figuring and consideration, 35 and one for each fraction thereof, so if any county has 36 members it will be entitled to two delegates. I will say that had as careful consideration as any section or any article in the whole Constitution and By-Laws, and this was arrived at after very mature and careful consideration.

Dr. Diefendorf: I would like to know how many members there are to be from each county.

The Secretary: Hartford County has, according to the present membership, 178 members, New Haven 216, New London 55, Fairfield 131, Windham 38, Litchfield 53, Mid-

dlesex 50, Tolland 18. Upon this membership Hartford County will have 6 delegates, New Haven 7, New London 2, Fairfield 4, Windham 2, Litchfield 2, Middlesex 2, Tolland 1, total 26 delegates.

Dr. Diefendorf: Mr. President, the spokesman for Middlesex County is otherwise engaged, so I think I ought to be accorded the privilege of expressing the feeling of Middlesex County in this matter. They feel as if the present arrangement is satisfactory; as if the smaller counties ought to have the representation that they have had in the past. They feel as if the stimulus of being well represented in the State Society has meant a great deal to them, both in the matter of politics of the State Society, and in the matter of reading papers; men who come to the Society as Fellows, come in a larger percentage than they would otherwise come. And the feeling is also expressed that under the present arrangement there is very little opportunity for politics to enter into the business of the society. On the other hand, if it were so arranged that the cities could band together to the detriment of the smaller counties, there would be a decided disadvantage.

I am sorry that our spokesman is not here to present the matter in a clearer light than I am able to do. But I know that Middlesex County is opposed to this method of representation as reported here by this committee.

The President put the motion upon the passage of Section 2 as reported by the committee and declared the motion adopted.

Dr. Carmalt: I would like to correct the grammar of Section 4 by striking out the words, "future ones of higher interest," and by inserting in lieu thereof the words, "further advancement."

Motion adopted unanimously and the section was adopted as amended.

Section 5 was adopted.

Dr. Moulton moved to strike out the whole of Section 6, on the ground that the County Societies do this work now and have done it well all over the State, and that it is superfluous.

Motion seconded by Dr. Mailhouse.

Dr. Donaldson: Mr. President, I think that ought not to be cut out without further discussion and consideration. It seems to me we are taking some action in the midst of so much noise that we can't understand what is being done. I will say again that this has been given careful consideration by the committee, you have had it before you for some months, and to act hastily on it is wrong. I want to remind the gentlemen that we are making a new organization, and the organization we adopt here to-day will be followed by the adoption of a constitution in consonance with this by the county societies and the County Societies are the units of membership; they are the component members of the society. If we cut this out there will be a little bit of misunderstanding and I don't think it should be cut out unless there is some wise argument, more than we have heard. I think it better be left in as it is. This has been thoroughly considered for the last two or three years by a good committee of the American Medical Association.

Dr. Moulton: Having had some experience in other states I can appreciate in the large western states, why this is very necessary that the State Society should look after the county societies; but here in this state, each county society has been in existence, most of them, more than 100 years, and have taken in most of the men and are perfectly capable of carrying on their own business and I think most of the county societies will resent this action.

Dr. McKnight: This evidently was put in on account of the duties of the Councilor to look after those matters.

He is an officer of the state society, and I think that is one reason why that clause is put in.

Dr. Carmalt: Mr. President, I think the Section is a good one. There are a good many men in sparsely settled districts who do not get an opportunity to get with the profession, but rather get out of touch with it, and it will be the duty of the councilor under the new arrangement to look these men up, and I think it is a good plan to do it. I appreciate that the Section was made to meet states where the representation was in sparsely settled districts like Arkansas or Idaho, but in States so well settled as Connecticut, it seems there are men to whom if the councilor will go and talk with them and urge them to join the county society they will do so. I don't see any objection to it.

Dr. Lindsley: Mr. President, I should regret very much to see this omitted. It is only necessary to look through the list of resident physicians in the state of Connecticut, to find that there are a good many in certain districts, even in some districts a majority, of our profession who are not members of the County Society. I think the object should be maintained by the retaining of this rule.

Dr. Moulton: Mr. President, if the Society have no objection, I will withdraw my motion.

Motion withdrawn.

Section 6 was adopted.

Section 7 upon motion of Dr. Carmalt, was amended by striking out the words, "in the county societies," and by transposing the words, "utilized and," to follow the word "discussed," and by striking out the word "intelligently," so that the section when amended shall read as follows: "It shall encourage post-graduate and research work, as well as home study, and shall endeavor to have the results discussed and utilized."

Sections 8 and 9 were adopted.

Sections 10 and 11 stricken out.

Sections 12 and 13 renumbered as Sections 10 and 11.

The whole of Chapter IV as amended was then adopted.

Chapter V read by Dr. McKnight.

CHAPTER V.—ELECTION OF OFFICERS.

Section 1. All elections shall be by ballot, and a majority of the votes cast shall be necessary to elect.

Sec. 2. The election of officers shall be the first order of business of the House of Delegates after the reading of the minutes on the morning of the last day of the General Session.

Sec. 3. Any person known to have solicited votes for or sought any office within the gift of this Association shall be ineligible for any office for two years.

Sections 1 and 2 adopted.

Dr. Moulton: I move that Section 3 be stricken out. It don't seem to me that that is a dignified thing, to say that if anybody or any man solicits votes for another man, he shall be ineligible for office. It might have a very broad interpretation, and I think it had better be left out.

Motion adopted, and section 3 stricken out.

Dr. Donaldson: I would like to ask for information what was done with Section 3 of Chapter V, was it adopted or was it stricken out? Quite a good many Fellows thought it was adopted. I wish that it might be re-considered.

Dr. Carmalt: Anybody voting for its adoption can move for re-consideration. Nobody else can.

Dr. Donaldson: I am sorry that it was stricken out. I know it was adopted by a very small vote, and a good many of the Fellows didn't understand what they were voting about, I am sure.

Dr. Mailhouse. Mr. President, I move re-consideration of that vote upon Section 3 of Chapter V.

The President: It is moved that the vote on Section 3 of Chapter V be re-considered and taken over again.

Motion seconded.

A motion to re-consider, lost.

Dr. McKnight read Chapter VI.

CHAPTER VI.—DUTIES OF OFFICERS.

Section 1. The President shall preside at all meetings of the Association and of the House of Delegates; shall appoint all committees not otherwise provided for; he shall deliver an annual address at such time as may be arranged, and perform such other duties as custom and parliamentary usage may require. He shall be the real head of the profession of the State during his term of office, and, as far as practicable, shall visit by appointment the various sections of the State and assist the Councilors in building up the county societies, and in making their work more practical and useful.

Sec. 2. The Vice-Presidents shall assist the President in the discharge of his duties. In the event of the President's death, resignation or removal, the Council shall select one of the Vice-Presidents to succeed him.

Sec. 3. The Treasurer shall give bond in the sum of \$——. He shall demand and receive all funds due the Association, together with the bequests and donations. He shall pay money out of the Treasury only on a written order of the President, countersigned by the Secretary; he shall subject his accounts to such examination as the House of Delegates may order, and he shall annually render an account of his doings and of the state of the funds in his hands.

Sec. 4. The Secretary shall attend the General Meetings of the Association and the meetings of the House of Delegates, and shall keep minutes of their respective

proceedings in separate record books. He shall be ex officio Secretary of the Council. He shall be custodian of all record books and papers belonging to the Association, except such as properly belong to the Treasurer, and shall keep account of and promptly turn over to the Treasurer all funds of the Association which come into his hands. He shall provide for the registration of the members and delegates of the Annual Sessions. He shall, with the co-operation of the secretaries of the component societies, keep a card-index register of all the legal practitioners of the State by counties, noting on each his status in relation to his county society, and, on request, shall transmit a copy of this list to the American Medical Association. He shall aid the Councilors in the organization and improvement of the county societies and in the extension of the power and usefulness of this Association. He shall conduct the official correspondence notifying members of meetings, officers of their election and committees of their appointment and duties. He shall employ such assistants as may be ordered by the House of Delegates, and shall make an annual report to the House of Delegates. He shall supply each component society with the necessary blanks for making their annual reports; shall keep an account with the component societies, charging against each society its assessment, collect the same, and at once turn it over to the Treasurer. Acting with the Committee on Scientific Work, he shall prepare and issue all programs. The amount of his salary shall be fixed by the Council.

Dr. McKnight: The committee reported an amendment to Section 3 by striking out the words, "give bond in the sum of \$——. He shall," so that the sentence as amended shall read: "The Treasurer shall demand and receive," etc.

Dr. Mailhouse: I would like to ask why the committee recommend that the Treasurer should not give a bond. Why shouldn't he give a bond?

Dr. McKnight: I guess it is simply because he had not been giving a bond in the past, and it has not been customary.

Dr. Wordin: I would like to state, gentlemen, that in the committee meeting the question of bonds was considered, and inasmuch as the amount in the hands of the Treasurer was never at any one time very much, it was thought it was hardly necessary to require a bond of him. His collections amount to considerable in the course of the year; but he is continually paying out as bills accrue, and the amount, of money in his hands, at any one time, is not very large.

Dr. Mailhouse: Mr. President, we are legislating for the future. The Treasurer receives a salary and it does not seem to me unreasonable that our By-Laws should provide for a bond from the Treasurer, and it seems to me that the By-Laws as printed should stand in regard to the question of a bond. It seems to me a bond should be given.

Section 3 was adopted as amended.

Dr. Osborne: That leaves him without bond?

The President: That leaves him without bond, as he is now.

A Delegate: I think as Dr. Mailhouse says, that we are legislating for the future; and if we do not fix it now, it will be difficult in the future to require a bond.

Dr. Moulton: Mr. President, I move that we re-consider the vote on Section 3 of Chapter VI.

Motion to re-consider carried.

Dr. Mailhouse: I move to amend the report of the committee so that Section 3 shall read as printed and I would suggest that amount be \$500.

Motion seconded by Dr. Osborne.

Dr. Osborne: Mr. President, I would like to ask the

Treasurer how much is generally in the treasurer's hands in the shape of funds?

The President: Will the Treasurer state what is the average amount in his hands, how much he can run off with at any time? ((Laughter).

Dr. Knight: Most of the time there is very little money in the treasury. At the time of the state meeting some years, we have considerable money. This year, I am happy to state, we have about \$860 on hand, a larger sum than I have ever happened to have since I have been treasurer. Sometimes it has been much less, on one occasion, less than nothing. (Laughter.)

Dr. Osborne: I would ask Dr. Mailhouse to make the sum one thousand dollars instead of \$500.

Dr. Mailhouse: I adopt the suggestion.

Dr. Donaldson: Mr. President, how shall that bond be given? Has our treasurer an annual salary as treasurer that will compensate him for buying a bond, or shall he go back to some of his trusted friends and ask them to go bond for him? Or shall the society buy a bond for him? We either ought to do something of that sort, or raise his salary so as to enable him to buy a bond of that character.

Dr. Carmalt: I move to amend Section 3 so that it shall read: "The Treasurer shall give bond in the sum of \$1,000, the manner of bonding to be left to the council.

Dr. Mailhouse: I will accept that amendment to my motion.

Section 3 as amended by Dr. Carmalt, was adopted unanimously.

Section 4 was amended by striking out after the words "annual reports" the words "shall keep an account with the Component Societies, charging against each society

it's assessment, collect the same and at once turn it over to the Treasurer."

The whole of Chapter VI as amended was then adopted.

Dr. McKnight read Chapter VII.

CHAPTER VII.—COUNCIL.

Section 1. The Council shall meet on the day preceding the Annual Session, and daily during the Session, and at such other times as necessity may require subject to the call of the chairman or on petition of three Councilors. It shall meet on the last day of the Annual Session of the Association to organize and outline work for the ensuing year. It shall elect a chairman and a clerk who, in the absence of the Secretary of the Association, shall keep a record of its proceedings. It shall, through its chairman, make an annual report to the House of Delegates.

Sec. 2. Each Councilor shall be organizer, peacemaker and censor for his district. He shall visit the counties in his district at least once a year for the purpose of organizing component societies where none exists; for inquiring into the condition of the profession, and for improving and increasing the zeal of the county societies and their members. He shall make an annual report of his work and of the condition of the profession of each county in his district at the Annual Session of the House of Delegates. The necessary traveling expenses incurred by such Councilor in the line of the duties herein imposed may be allowed by the House of Delegates on a proper itemized statement, but this shall not be construed to include his expense in attending the Annual Session of the Association.

Sec. 3. The Council shall be the board of censors of the Association. It shall consider all questions involving the rights and standing of members, whether in relation

to other members; to the component societies, or to this Association. All questions of an ethical nature brought before the House of Delegates or the General Meeting shall be referred to the Council without discussion. It shall hear and decide all questions of discipline affecting the conduct of members or component societies on which an appeal is taken from the decision of an individual Councilor, and its decision in all such matters shall be final.

Sec. 4. In sparsely settled sections it shall have authority to organize the physicians of two or more counties into societies to be suitably designated so as to distinguish them from district societies and these societies when organized and chartered shall be entitled to all rights and privileges provided for component societies until such counties shall be organized separately.

Sec. 5. The Council shall provide for and superintend the publication and distribution of all proceedings, transactions and memoirs of the Association and shall have authority to appoint an editor and such assistants as it deems necessary. All money received by the Council and its agents, resulting from the discharge of the duties assigned to them, must be paid to the Treasurer of the Association. As the Finance Committee it shall annually audit the accounts of the Treasurer and Secretary and other agents of this Association and present a statement of the same in its annual report to the House of Delegates, which report shall also specify the character and cost of all the publications of the Association during the year, and the amount of all other property belonging to the Association under its control, with such suggestions as it may deem necessary. In the event of a vacancy in the office of the Secretary, or the Treasurer, the Council shall fill the vacancy until the next annual election.

The committee reported the following amendment.

Section 1 was amended by striking out the words, "on the day preceding the annual session and" so that the same shall read when amended "The council shall meet daily during the session."

Section 2 was amended by striking out the last sentence in said section being all the words after the words "House of Delegates."

Section 4 was stricken out bodily and the following section was proposed as a substitute in lieu thereof:

"Sec. 4. The First Councilor District shall be Hartford County, the second, New Haven County, the third, New London and Middlesex Counties, the fourth, Fairfield County, the fifth, Litchfield County, the sixth Windham and Tolland Counties.

Dr. McKnight: Mr. President and Gentlemen, it seems absolutely necessary that the Councilor should hold office at least three years; and to effect that, you must have a number which is a multiple of three, and it was very hard to fix it any other way. The committee talked it over some time and it seemed this was the most equitable arrangement to be made. New Haven with seven delegates has a Councilor, Hartford with 6 delegates has a Councilor.

Dr. Moulton: I would like to have some members of the committee make a statement in regard to what discussion was had in regard to having a Councilor or censor, and the discussion between members of the county societies, whether they decided it would be wise to bring outside men into the discussion, which came up between men and the local societies' men who are not acquainted with the local surroundings.

Dr. McKnight: Each councilor is a censor for his own county, and you can appeal from him to the Board of Councilors.

Dr. Moulton: The only question I brought up was

whether this might not bring up the little local discussions which come up in our society, and let them be thrown into a board of men who are not up with what is going on in that particular locality what effect it would have.

Dr. McKnight: It would be a good thing.

Dr. Carmalt: Mr. President, before that is adopted, I want to understand how the council is elected, who the council consists of? I can't find anything in this whole thing, and I have studied it ever since it was organized, who the new council is, and how it is going to be elected.

Dr. McKnight: I think that is an omission. They should be elected by the county societies and that is the great trouble in this consolidation of two counties.

Dr. Mailhouse: I think under the head of officers on page 9 of the printed constitution, Article IX will be found an answer to Dr. Carmalt's question. It says the delegates shall elect the Councilors.

Dr. Carmalt: Then the Delegates are going to elect the councilor; is that so? It doesn't say so.

Dr. Edgerton: I would like to make one suggestion, and that is, why the Connecticut Medical Society needs this council? Why we are not individually sufficiently well off as counties as we are, without destroying our unity as Councilors. Personally I should think we might omit that whole Chapter, and I don't see why on earth we need that Chapter. It seems a pity, that is in Middlesex County, to make us a part of New London County, and I don't know why we should lose our identity.

Dr. McKnight: The remark was made by Dr. Linsley of the State Board of Health recently, and I think that it is a sufficient answer to that question. There are a great many men who are not under the influence of the Connecticut Medical Society, and it is the duty of

the Councilors, and made to be, to do that. It also provides a body going there from year to year looking after the interests of the Society. I think your meetings will be much better attended. your scientific work will be far superior will be something perhaps approaching to what it is in other States if this is carried out.

The first Councilors shall be elected by the President and the next Councilors after the first are to be elected by the Delegates from the County Society. I move that Section 4, as read in the report of the committee be stricken out.

The motion was duly seconded and carried.

The whole of Chapter VII as amended was then adopted.

Chapter VIII was read by Dr. McKnight.

CHAPTER VIII.—COMMITTEES.

Section 1. The standing committees shall be as follows:

A Committee on Scientific Work.

A Committee on Public Policy and Legislation.

A Committee on Arrangement, and such other committees as may be necessary. Such committees shall be elected by the House of Delegates, unless otherwise provided.

Sec. 2. The Committee on Scientific Work shall consist of three members, of which the Secretary shall be one, and shall determine the character and scope of the scientific proceedings of the Association for each session, subject to the instructions of the House of Delegates. Thirty days previous to each Annual Session it shall prepare and issue a program announcing the order in which papers, discussions and other business shall be presented.

Sec. 3. The Committee on Public Policy and Legislation shall consist of three members and the President

and Secretary. Under the direction of the House of Delegates it shall represent the Association in securing and enforcing legislation in the interest of the public health and of scientific medicine. It shall keep in touch with professional and public opinion, shall endeavor to shape legislation so as to secure the best results for the whole people and shall strive to organize professional influence so as to promote the general good of the community in local, state and national affairs and elections.

Sec. 4. The Committee of Arrangements shall be appointed by the component society in which the Annual Session is to be held. It shall provide suitable accommodations for the meeting places of the Association and of the House of Delegates, and of their respective committees. Its Chairman shall report an outline of the arrangements to the Secretary for publication in the programme, and shall make additional announcements during the session as occasion may require.

Section 2 was amended by substituting 15 for 30.

Section 3 was amended by striking out, in the first sentence, the word "three," and inserting in lieu thereof the word "one" and by adding after the word "member," "from each component society," so that the same shall read when amended "the committee on public policy and legislation shall consist of one member from each component society, and the President and Secretary."

Chapter VIII as amended was then adopted.

Chapter IX was read by Dr. McKnight.

CHAPTER IX.—COUNTY SOCIETIES.

Section 1. All county societies now in affiliation with this Association or those which may hereafter be organized in this State, which have adopted principles of organization not in conflict with this Constitution and By-Laws, shall, on application, receive a charter from and become a component part of this Association.

Sec. 2. As rapidly as can be done after the adoption of this Constitution and By-Laws a medical society shall be organized in every county in the State in which no component society exists, and charters shall be issued thereto.

Sec. 3. Charters shall be issued only upon approval of the Council or House of Delegates and shall be signed by the President and Secretary of this Association. The Council or the House of Delegates shall have authority to revoke the charter of any component society whose actions are in conflict with the letter or spirit of this Constitution and By-Laws.

Sec. 4. Only one component medical society shall be chartered in any county. Where more than one county society exists, friendly overtures and concessions shall be made, with the aid of the Councilor for the District if necessary, and all of the members brought into one organization. In case of failure to unite, an appeal may be made to the Council, which shall decide what action shall be taken.

Sec. 5. Each county society shall judge of the qualification of its own members, but as such societies are the only portals to this Association and to the American Medical Association, every reputable and legally registered physician who does not practice or claim to practice nor lend his support to, any exclusive system of medicine, shall be entitled to membership. Before a charter is issued to any county society, full and ample notice and opportunity shall be given to every such physician in the county to become a member.

Sec. 6. Any physician who may feel aggrieved by the action of the society of his county in refusing him membership or in suspending or expelling him, shall have the right to appeal to the Council, and its decision shall be final.

Sec. 7. In hearing appeals the Council may admit oral

or written evidence as in its judgment will be best and to most fairly present the facts, but in case of every appeal, both as a Board and as individual Councilors in district and county work, efforts at conciliation and compromise shall precede all such hearings.

Sec. 8. When a member in good standing in a component society moves to another county in this State, his name on request, shall be transferred, without cost, to the roster of the county into whose jurisdiction he moves.

Sec. 9. A physician living on or near a county line may hold his membership in that county most convenient for him to attend, on permission of the society in whose jurisdiction he resides.

Sec. 10. Each component society shall have general direction of the affairs of the profession in its county, and its influence shall be constantly exerted for bettering the scientific, moral and material condition of every physician in the county; and systematic efforts shall be made by each member, and by the society as a whole, to increase the membership until it embraces every qualified physician in the county.

Sec. 11. At some meeting in advance of the Annual Session of this Association, each county society shall elect a delegate or delegates to represent it in the House of Delegates of this Association in the proportion of one delegate to each fifty members or fraction thereof, and the Secretary of the society shall send a list of such delegates to the Secretary of this Association, at least ten days before the Annual Session.

Sec. 12. The Secretary of each component society shall keep a roster of its members and of the non-affiliated registered physicians of the county, in which shall be shown the full name, address, college and date of graduation, date of license to practice in this State and such other information as may be deemed necessary. In keeping such roster the Secretary shall note any changes

in the personnel of the profession by death, or by removal to or from the county, and in making his annual report he shall be certain to account for every physician who has lived in the county during the year.

Sec. 13. The Secretary of each component society shall forward its assessment, together with its roster of officers and members, list of delegates, and the list of non-affiliated physicians of the county to the Secretary of this Association each year thirty days before the Annual Session.

Sec. 14. Any county society which fails to pay its assessment, or make the report required on or before ———, shall be held as suspended, and none of its members or delegates shall be permitted to participate in any of the business or proceedings of the Association or of the House of Delegates until such requirements have been met.

The following amendments were made by the committee:

Sections 2, 3 and 4 were stricken out, and the other sections renumbered to correspond.

Section 5 of the By-Laws as printed was amended by striking out all of the last sentence, after the word "membership."

Section 11 was amended by inserting the word "thirty-five" in place of the word "fifty" so that the same shall read "thirty-five members," and by inserting the word "twenty" in place of the word "ten" in the last line, so that it shall read: "twenty days before the annual session."

Dr. Carmalt: In relation to Section 12 of the printed By-Laws, the Secretary of the State board of Health calls my attention to the fact that there is no license to practice medicine issued in this state. It is the date of registration which would be proper in our state, not a license. That would conform to the law.

The President: Are there not some licenses issued by our Board of Examiners?

Dr. Lindsley: Every one who does practice here must be registered, that is the only thing required. The registration is the license to practice, but it is not so spoken of in the law. The word license is not used in our statutes. This should be date of registration.

Section 12 was amended by striking out the words, "license to practice," and inserting in lieu thereof, the word "registration" so that the same shall read, "date of registration in this state."

Section 13 was amended by striking out the section as printed, and substituting the following therefor:

"Sec. 13. The Secretary of each component society shall forward its assessment to the Treasurer, at least ten days before the Annual Session; and its roster of officers and members, list of delegates and list of non-affiliated physicians of the county to the Secretary of this Association each year twenty days before the annual session."

Section 14 was stricken out.

The whole of Chapter IX as amended was then adopted.

Dr. McKnight read Chapter X.

CHAPTER X.—MISCELLANEOUS.

Section 1. No address or paper before this Association, except those of the President and orators, shall occupy more than twenty minutes in its delivery; and no member shall speak longer than five minutes, nor more than once on any subject except by unanimous consent.

Sec. 2. All papers read before the Association or any of the Sections shall become its property. Each paper shall be deposited with the Secretary when read.

Sec. 3. The deliberations of this Association shall be governed by parliamentary usage as contained in Rob-

erts' Rules of Order, when not in conflict with this Constitution and By-Laws.

Sec. 4. The Principles of Medical Ethics of the American Medical Association shall govern the conduct of members in their relations to each other and to the public.

Section 2 was amended by adding at the end thereof "No paper shall be read before this Association which has been previously published or read before any other organization."

The whole of Chapter X as amended was then adopted.

A Delegate: Do I understand that includes papers read before the County societies?

Dr. McKnight: The county society being a part of this Association, I don't think it would cut them out. The county societies are a part of this association. That is the way it was considered by the committee.

CHAPTER XI.—AMENDMENTS,

These By-Laws may be amended at any Annual Session by a majority vote of all the delegates present at that session, after the amendment has been laid on the table for one day.

Chapter XI was adopted.

The President: Now we have some dropped stitches to take up. We will go back to Article V of the constitution.

On motion of Dr. Carmalt, duly seconded, article V was adopted.

The President: We will now take up Article VI.

Dr. McKnight: It has been suggested by a few members of the committee that Article VI be changed so as to read: "The Council shall consist of one councilor from each county and the President and Secretary ex-officio." We have no authority as a committee to report that. We simply make the suggestion.

Dr. Carmalt: I make that amendment so it can be brought up properly before the committee.

The President: It is moved and seconded that Article VI shall be read as amended.

Article VI was adopted as amended.

The President: We will now take up Article IX of the Constitution.

Dr. Mailhouse: Mr. President, I read over these proposed changes before the meeting, and one objection struck me as being quite pertinent, and that was this; the phrase or clause stating that no person shall be elected to any such office who is not in attendance upon that annual session. It strikes me that that might be productive of harm. It is possible that a Vice-President whom the society might wish to elect as its next president might not happen to be in attendance at that annual session, and this law would prevent his election to the presidency. I think that clause ought to be stricken out.

Dr. Carmalt: There might be a man we want to elect for a councilor, and he is called off by an emergency just for that day. It does not seem necessary to restrict it to those who are present.

Dr. Mailhouse: I move to strike out of Section 3, of Article IX the words, "who is not in attendance upon that annual session, and" so that the same shall read, "and no person shall be elected to any such office who has not been a member of the association for the past two years."

Dr. Donaldson: I would say in explanation for the committee, that the reason for adopting that was that we might elect some man who would decline the election, and there is no provision for electing his successor in such a case.

The amendment offered by Dr. Mailhouse to Section 3 was adopted.

Section 1 was amended so as to read "two Vice-Presidents, a Secretary, a Treasurer, and eight Councilors.

Section 2 was amended so that it shall read, "The terms of the elected councilors shall be for two years, those first elected serving one and two years, as may be arranged."

Article IX as amended was then adopted.

The President: That completes the left over portions of the articles of the Constitution and By-Laws.

Dr. Lindsley: Mr. President, I move you now that the Constitution and By-Laws be adopted as amended.

Dr. Pratt. Mr. President, at the request of some of the men who were not present in the room at the time we adopted Section 2 of Chapter IV of the By-Laws, in regard to the representation of the component societies, being in the vote of the house, having voted in favor of that section, at the request of several gentlemen here, I move a re-consideration of Section 2 of Chapter IV of the By-Laws.

Motion seconded.

Motion to reconsider, lost.

The President: Gentlemen, we will now take action on the Constitution and By-Laws as a whole.

Dr. Edgerton: Mr. President, is that a debatable motion?

The President: Yes, sir.

Dr. Edgerton: Then I would like to say something before we adopt this constitution. Gentlemen, do you understand that we have had the present constitution 112 years, and that we are throwing away a constitution under which we have served 112 years for one that has been substituted and written up for us, as I understand, by the Secretary of the American Medical Association, and is practically a verbatim copy of the American Medical Association constitution. We throw away all the as-

sociations of the old charter that worked very well. We worked very well under the old charter for a great many years, and it seems to be a great pity to throw away a constitution that is 112 years old, dating back almost to the beginning of the colony; and are you quite fully wide awake to the fact that you are throwing away all those associations? Do they count for nothing?

Again, if we are to go to the Legislature, there is a certain amount of expense entailed by doing so; and I submit is it necessary in order to get what you want, to conform as a component society of the American Medical Association to which we send two members only out of 150 to their House of Delegates, to throw away all the associations, and adopt all this new machinery? Is not the machinery and the By-Laws under which we have lived and worked for many years, good enough? In fact, I am told the American Medical Association did us the honor to copy our constitution as a sample; and is not the original as good as the substitute? Personally I feel as though it was doing a great deal, and it seems to me a piece of foolishness to throw our constitution away just simply for a new order of things that has been written up for states and territories different from our own, with large areas of sparsely settled population, simply to adopt something that somebody has given to us.

With reference to the matter of representation from counties, of course, we, from the smaller counties, wish to utter a protest. There is no sense, no reason, why we should not continue to have as good a representation. It is the old discussion that came up in the new constitution proposed for the state of Connecticut, and fortunately the State of Connecticut had the good sense to antagonize it, and not adopt the new constitution. I don't know why a more conservative body of men should not follow the example of the greater body of the state and it certainly is in harmony with our political associations that we should. (Applause.)

Dr. Osborne: Mr. President, I would like to tell the representative from Middlesex County that we have only one constitution. We must consider that the foundation of our organization in the Connecticut State Society, is the foundation of the American Medical Association today. These By-Laws and this Constitution are drawn up not by the Secretary of the American Medical Association, but by a large committee that had been working for a number of years on this plan.

Dr. McKnight: Mr. President, the delegate from Middlesex said we have got along very well under this old constitution. I don't think so. I think if he would attend some meetings of Medical Societies of other states he would see a great difference between that and our society. Our scientific work is poor, it is way behind the times, and the idea of this is to develop more on scientific lines, and I think it will be accomplished in this way, by the addition of the council to our lines of business.

He spoke of the expense incurred in getting this new legislation. It is nothing more than a typewritten copy of the bill.

Dr. Carmalt: Mr. President, I have a good deal of sympathy with the remarks of Dr. Edgerton. He and I are getting along toward "the sere and yellow leaf," when we have an affection for old things rather than new and I recollect this morning the discussion we had. Personally I think the same, and I take the same ground as Dr. Edgerton has, that I have lived under this old constitution for twenty-five years, and we have got along fairly well. At the same time, sir, we have not done as much as we might do; and I think I see in the adoption of this new regime an opportunity for enlarging the work of the society, especially in the appointment of that body of men known as the councilors. I think if we make a good selection of councilors, we are going to have a very much improved order of work in our society. I

appreciate all that Dr. Edgerton has said with regard to affection for the old; but we live in the day of automobiles and trolley cars, and although I still like my old horse to trot around with, at the same time I appreciate that we are getting along to the time when we have got to keep up and keep step with the rest. And I don't see but what the adoption of the new constitution is going to help us and our work. We do not throw away the traditions of the society, sir, the traditions of the society will remain with us just as it did before, we have got all the old feeling in the society, and I think this new constitution is an actual improvement in the way in which the society can enlarge its scope of usefulness. I hope the constitution will be adopted, sir.

Dr. Donaldson: It seems to me the great feature of this change to-day has been lost sight of in this discussion. The fact is we have outgrown the state organization, and we have become a great national organization.

Now it is not only necessary that we should act as counties or as a state, but that we should act as one great profession of the United States. It is for that reason that every state in the Union is adopting practically this same thing, that we may go as one great body into the halls of legislation, not only in the state, but in Congress and our national legislature. We want to give up the methods of the thirteen colonies, perhaps, with all due respect to our constitution. We are not changing it, we are simply modifying it to meet our present state, and to make it one great body, and not make it an outside affair. We are not throwing away our old constitution, we are making it harmonize with our national organization.

Dr. Higgins: Mr. President, the members of the Tolland County society are unanimously in favor of the new constitution.

The President: We will vote on the question of adopt-

ing the new Constitution and By-Laws which we have had exhibited. All those in favor of adopting this Constitution and By-Laws will say aye. (Putting the question.) It is a unanimous vote. The Connecticut Medical Society has adopted the new Constitution and By-Laws as amended to-day.

The President: The next order of business is the report of the committee on recommendations in the President's address.

REPORT OF COMMITTEE ON RECOMMENDATIONS CONTAINED IN THE PRESIDENT'S ADDRESS.

Dr. Osborne: Mr. President, I have been unable to locate the third member of my committee, but two of us have offered the following resolutions:

First. In regard to delegates to national tuberculosis associations. It seems best to your committee that the Connecticut Medical Society endorse the society termed "The National Association for the Study and Prevention of Tuberculosis," which association is backed by such men as Trudeau, of Saranac Lake, Biggs, of New York, Flick of Philadelphia, Sternberg of Washington, Osler and Welch of Baltimore. We therefore recommend that five delegates be sent from the Connecticut Medical Society to the meeting of this Association at Atlantic City, on June 6th, and we nominate Dr. H. L. Swain, of New Haven, Dr. E. K. Root, of Hartford, Dr. S. M. Garlick of Bridgeport, Dr. Carl E. Munger, of Waterbury and Dr. D. C. Brown, of Danbury.

Second. Regarding the sealing of certificates to practice medicine with the Society seal, we would refer this to a committee consisting of Drs. N. E. Wordin, C. A. Lindsley and C. A. Tuttle.

Third. In regard to the request of Dr. Keen for funds

for the Walter Reed Memorial, we would offer the following motion:

Resolved, That the Connecticut Medical Society approves of this Memorial and instructs its treasurer to send to Dr. Keen fifty dollars of the Society's funds plus such other private donations as he may receive for this purpose by January 1st, 1905.

Fourth. Concerning the resolutions of the Mississippi Valley Medical Association regarding legislation to prevent lock-jaw, we would offer the following:

Resolved, That the Connecticut Medical Society endorses the recommendations of the Mississippi Valley Medical Association, and instructs its secretary to so notify that Association. Also,

Resolved, That this matter be referred to our Legislation Committee for their consideration.

All of which is respectfully submitted,

(Signed)

OLIVER T. OSBORNE,
ELIAS PRATT.

The President: Gentlemen: You have heard the first section of the report of the committee on recommendations in the President's address. What is your pleasure?

Resolution adopted.

Dr. Osborne: Perhaps I have been misinformed, but your committee was proceeding on the recommendation in regard to certificates of the license to practice. We supposed they received licenses, and therefore this was offered regarding the seal on certificates to practice medicine with the society's seal. The recommendation of the President was regarding the use of the seal of the society. On that recommendation the committee made the suggestion that we refer this to Doctors Wordin, Lindley and Tuttle.

Dr. Lindsley: Do I understand the purpose is to issue a diploma to them with the seal attached ?

Dr. Osborne: Why, the President says he has received notice that some men would like some such thing. The committee recommends that this whole matter be referred to a committee to report at the annual meeting next year.

Dr. Tuttle: Mr. President. As secretary of this Medical Examining Committee we issue the certificate after examination of which Dr. Lindsley speaks. The certificates which we issue signed by the five members of the committee are a presentable sort of a document which the candidates who have passed have repeatedly asked to retain. They take those certificates which we have granted and file them with Dr. Lindsley, one of which he retains, and the other goes to the town clerk of the town in which they are registered, or it is supposed to do so. They apply for them at the town clerk's office, but do not succeed in getting them.

Now, having been requested so many times I would venture to say twenty-five times by word of mouth, and fifty times by letter, to send them a certificate, which they can retain, signed by the members of this committee which examined them I have written to the secretary and asked permission to forward to those candidates one of the certificates in addition to the two which I send Dr. Lindsley, with the seal of the state society upon it.

The document which Dr. Lindsley in his official capacity sends to the members is so insignificant in appearance as compared with the one which we sign, that they don't seem to care to do anything with them.

Now the matter has been given I think undue importance, but it was the request of the committee that we request the state society through the President and Secretary, for the privilege of using the seal, or having the secretary of our society stamp the seal upon one of those

certificates which we will send to each of the candidates who are examined. It is customary in almost all the other states, and when men come up here from any one of the states like New York, Pennsylvania, New Jersey, or from the other New England States, and present a sizeable document on parchment engrossed and with the seal of the state society or the examining committee upon it, it seems rather insignificant that they should receive the smallest kind of a sheet of paper not larger than that (about 5x8) not especially good quality of paper, and simply printed upon it that they are entitled to register in some county in the state. We hope, Mr. President, that this committee will be appointed according to the resolution which Dr. Osborne has suggested, and that it will be duly considered, and I think we can convince Dr. Lindsley and Dr. Wordin of the advisability of this movement. I thank you for the privilege of speaking.

Mr. President.

Dr. Garlick: I would like to call attention to certain facts which have not been brought out. It is peculiar, perhaps, to the State of Connecticut, that it trusts its medical men to the medical societies which it has chartered to examine the candidates for practice. The State then gives through the state Board of Health, a certificate, which sets out that they have passed that examination; in other words, the State has the graciousness to guarantee our work. Indirectly then we become first officers of this society, and the State endorses our action. Now, many of our applicants are pleased to have been examined by the State Society. The State simply says that they are entitled to practice, but gives them no legitimate medical standing. They would be pleased to have upon their certificates the statement that the Connecticut Medical Society has endorsed their capacity to practice. I think that, perhaps, is a point which Dr. Tuttle did not bring out. It is as members of this society, not as the State of Connecticut, that we would af-

fix this seal to endorse their evidence of examination, not the evidence that they are entitled to a license to practice, but the evidence that they have passed the examination. There are now on the floor here to-day gentlemen who are an honor to our society. Having passed the New York examination, they present a very respectable paper, and they say to the examiners of our society: "What evidence have we that we have passed your examination?" I hope that the committee will be appointed.

Dr. Eliot: I understand the passage of this resolution does not authorize the committee to use the seal, but it is simply to make a report on the advisability of affixing the seal?

The President: That is all.

Motion to appoint the committee was adopted.

Dr. Osborne: The third resolution is in regard to the appropriation for a memorial to Dr. Reed.

Resolved, That the Connecticut Medical Society approves of this Memorial, and instructs that \$50, of the Society's funds, plus such other private donations, etc.

Dr. Donaldson: Mr. President, I would like to ask the Treasurer whether the funds on hand would warrant that appropriation?

Dr. Knight: The funds at the present time will warrant the expense providing that the tax the coming year is made sufficiently high. That seems to be the only point. The Treasurer has cash on hand, but the tax would have to be kept up to \$2.50 or \$2.75.

Dr. Carmalt: All I know about this, Mr. President, is, that Dr. Reed was an army surgeon who did a great deal of good work in regard to the discovery of the origin of yellow fever. He died in Washington, while an Army surgeon, not as the direct result of his acquiring yellow fever at all, for he died of appendicitis. But he left

a family, a wife and two children, entirely unprovided for and a number of gentlemen who are interested in yellow fever work have endeavored to raise a fund of, I think \$20,000, the interest of which shall be used to educate his children, and after that the principal is devoted to some special scientific work, the purpose of which I cannot now recollect; but the thing has attracted the attention of a great many medical societies, some of the most prominent men of the profession urging that contributions should be raised for this purpose, and this was one of the ways in which they wanted to raise the money. This does not prevent anybody from putting his hand in his pocket and giving more.

Dr. Donaldson said that from the report of the Treasurer it would be apparently necessary to lay an additional tax of twenty-five cents in order to raise this extra fifty dollars.

Dr. Edgerton said that there was no precedent for anything of this sort. It is an entering wedge and a very bad precedent, and he was personally opposed to it.

The motion was lost.

Dr. Osborne: The last recommendation is in regard to legislation to prevent lock-jaw.

Dr. Moulton moved that the report be accepted.

The motion was adopted.

The President: The next business is the report of the Committee on National Legislation, of which Dr. McKnight is chairman.

Dr. McKnight made the following report which was accepted.

REPORT OF COMMITTEE ON NATIONAL LEGISLATION.

As a result of action taken at the last meeting of the American Medical Association, a committee consisting of one from each state in the Union was appointed to assist the Committee on Legislation of that Association, which consists of Dr. C. A. L. Reed of Cincinnati, Dr. C. L. Rodman of Philadelphia and Dr. Wm. H. Welch of Baltimore, to be known as the State Auxiliary Committee. Later the presidents of the several state societies were requested to appoint one physician from each county in their state; the whole to be known as The National Auxiliary Congressional and Legislative Committee of The American Medical Association.

The following were appointed by the President of the Connecticut Medical Society:

- Dr. E. J. McKnight, Hartford County.
- Dr. C. S. Rodman, New Haven County.
- Dr. F. H. Braman, New London County.
- Dr. J. W. Wright, Fairfield County.
- Dr. J. B. Kent, Windham County.
- Dr. R. S. Goodwin, Litchfield County.
- Dr. F. K. Hallock, Middlesex County.
- Dr. C. B. Newton, Tolland County.

A meeting of the State Auxiliary Committee was held at Washington, D. C., February eleventh, 1904, at which were present the Chairman of the Committee on National Legislation, Dr. C. A. L. Reed of Cincinnati, representatives from Wisconsin, Virginia, Colorado, Iowa, Connecticut, Missouri, Pennsylvania, New York, South Carolina, District of Columbia, New Jersey, South Dakota, Alabama, The U. S. Navy, The U. S. Public Health and Marine Hospital Service and The U. S. Army. The different matters pending before Congress which had been referred to the Medical Profession and Public Health were discussed. Dr. Wiley, Chief of the Bureau of Chemistry, Department of Agriculture, ad-

ressed the Committee on Proposed Legislation relating to drugs and pure foods.

The following resolutions in relation to Antitoxin were adopted:

Resolved, That there should be prepared in the United States a standard anti-toxin for determining the strength of anti-diphtheric serum and that the Public Health and Marine Hospital Service be requested to prepare and maintain said standard. Be it further

Resolved, That anti-diphtheric serum shall be introduced into the United States Pharmacopeia, and that the standard prepared by the Public Health and Marine Hospital Service be made official.

Resolved, That a copy of this resolution be sent to the Committee on the Revision of the Pharmacopeia.

Drs. Van Meter, of Colorado, Currens of Wisconsin, Sanders of Alabama, Amberg of Michigan and Dibbrell of Arkansas were appointed a Committee to formulate a standard Medical Practice Act to be presented at an adjourned meeting of the Council to be held at Atlantic City.

A resolution advising the appointment of a Medical Representative upon the Canal Commission was adopted. It was voted that the Chairman at his discretion make a referendum on each of the following questions:

First. The appointment of the Medical Representative on the Panama Canal Commission.

Second. On the Army Medical Bill. (See Journal of The American Medical Association, Feb. 27, 1904. p. 605.)

Third. The pure food and drug bills.

On a roll-call the delegates present reported on the condition of Medical Legislation in their respective states and the Committee adjourned to meet in Atlantic City during the meeting of the American Medical Association.

Respectfully submitted,

E. J. Mc KNIGHT.

New Business was announced in order.

Dr. E. P. Swasey: Mr. President, I am not a delegate, but new business is in order. This afternoon we have just voted the adoption of a new charter for the furtherance of scientific improvement in the society. I think what we want to do is to take action in regard to the nuisance we have been subjected to this afternoon. We have had unavoidable noises from the street on the one side and the other, but we have had that which we could have avoided in the rear. We never shall assume anything like scientific progress as long as this thing continues. I think it is time that we should do away with these exhibits and especially when they encroach on the hall, and I think it is time it was stopped.

Dr. Root: I think with the adoption of the new Constitution and By-Laws, it would be well for this society to consider whether we could not now abolish absolutely and forever this nuisance of the exhibits at our annual meeting. I have sat several times on the committee of arrangements, and it is only proper to say that I think all the time of one, and practically a good deal of the time of all the members of the committee has been devoted to soliciting, arranging and carrying on this business of the exhibits. It has been a necessity that has grown and developed gradually year by year until the money obtained from exhibitors has become of very large value in entertaining the society, but it has gotten so much of the floor, and takes so much time, and from the nature of the thing, has become so flagrant and interfering with the scientific character of our gathering, that it seems to me now is the time to call a halt. If we are to have scientific gatherings where we can have quiet and reasonable discussion of topics, it seems to me the sooner we divorce them from the exhibit of patent foods and mineral waters and tooth powders, the better. I would therefore move, Mr. Chairman, that the President

appoint a committee of three to investigate this subject to take into consideration what increased revenue will be necessary to carry on the meetings in a proper manner without the necessity of depending upon the rentals of exhibitors and report to this society.

The motion was seconded.

Dr. Carmalt: Mr. President, I am thoroughly in accord with everything Doctors Root and Swasey have said in this matter, but you know it can come just as well before the new committee on arrangements which we have now inaugurated, with the instruction that they shall carry out the ideas as sketched by Doctors Root and Swasey. The Committee of Arrangements shall provide suitable accommodations for the delegates, and shall have general charge. Therefore they can have full control of it without having a special committee appointed.

Dr. Root: I am perfectly satisfied with that, only I should be very glad to have the expression of the society with regard to the whole question of exhibits. If that is passed, we can act accordingly.

Dr. Carmalt: With Dr. Root's permission, Mr. President, I move that the new committee of arrangements be authorized to provide accommodations for the meeting of the Association, and abolish all exhibits in connection therewith.

Dr. Root: I withdraw my motion.

The motion of Dr. Carmalt was seconded and adopted.

The President: The Treasurer's report is called for.

Dr. Knight: In view of the fact that the society has abolished the income from the exhibitors, it will be necessary to increase the tax very materially. The committee of arrangements has never made any report to the Treasurer so that I am unable to state how much the expense has been, and therefore cannot estimate the increase of the tax necessary.

The Treasurer read his report, whereupon Dr. Donaldson moved that it be referred to the Auditing Committee and placed on file.

To the President and Fellows of the Connecticut Medical Society :

As Treasurer I present the following report of the finances of the Society for the year ended May 24, 1904.

Cash received from taxes collected by the County Clerks:

RECEIPTS.

Hartford County	\$401 61
New Haven County,	499 00
Fairfield County,	455 86
New London County,	128 60
Middlesex County	108 90
Windham County	100 79
Litchfield County,	98 55
Tolland County,	39 08
<hr/>	
Total receipts from taxes	\$1,832 39
Balance from old account	310 94
<hr/>	
Total	\$2,143 33

EXPENSES.

Proceedings; printing, binding, distributing, &c.	\$857 53
Postage,	49 62
Printing, stationery, etc.....	99 44
Committee on Matters of Professional Interest.....	26 58
Committee on National Legislation	54 50
Stenographer,	5 00
Salary of Secretary	150 00
Salary of Treasurer,.....	25 00
Expenses of Secretary.....	11 15
<hr/>	
Total expenses	\$1,278 82
Balance to new account	864 51
<hr/>	
Total	\$2,143 33

Arrears in Tax Laid May 27, 1903.

Hartford County	\$ 71 50
New Haven County	200 75
Fairfield County	57 75
New London County,	24 75
Middlesex County	None
Windham County	8 00
Litchfield County	46 75
Tolland County	2 75

Total amount in arrears, \$312 25

The expenses of the Society increased about \$150.00, partly due to bills carried over from last year and paid this year.

The income increased about \$460.00 with the tax per member twenty-five cents less than in the previous year. Credit for this is due the county clerks, especially in New Haven and Fairfield counties, the latter collecting twice as much as in 1903, a large part of it being taxes in arrears. The uncollected taxes amount to \$312.00 as compared with \$573.00 a year ago.

For the first time in several years the society has a sufficient sum on hand to nearly pay for printing the Proceedings of this year when the bills come due. This is a condition which seems to me desirable that the society should maintain. Provided that economy is practiced a tax of \$2.25 per member will continue this condition and I would recommend that such sum be voted as the annual tax for 1904.

Respectfully presented,
W. W. KNIGHT, Treasurer.

REPORT OF THE AUDITING COMMITTEE.

This certifies that we have examined the accounts of the Treasurer for the year ended May 24, 1904 and find them to be correct.

New Haven, Conn., May 25, 1904.

T. MORTON HILLS,

W. C. HAVEN,

Auditing Committee.

Dr. Eliot inquired why the sum of \$54 for expenses of Committee on Legislation to the American Medical Association was allowed, when the Society appropriated \$25 a year.

The President stated that the bill he signed was for \$24.50.

Dr. Knight: The amount of the report was \$52, which includes expenses of the meeting for two years. The amount originally appropriated was \$20, so far as my recollection serves me. The bills paid by the Treasurer were approved by the President and Secretary, so I assumed they were all right.

Dr. Eliot: I have yet to find out why \$54 was paid.

Report of the Treasurer accepted, also report of the Auditing Committee.

The President: The next business in order is the report of the committee on County Resolves.

The report was presented by Dr. F. E. Guild, which was as follows:

New Haven County presents the Resolution:—

Resolved—That the interests of the community as involved in the health of the children attending the Public Schools demand that Medical Inspection of schools be established by cities throughout the State.

W. S. BARNES,
Clerk.

The New Haven County Association asks that the action be approved in accepting the resignation of Dr. O. J. Hughes. The Fairfield County Association also asks to have her action ratified in dropping from her list of members, Dr. B. D. F. Sheedy; also to have the dues of Doctors A. W. Lyons and L. T. Day remitted and that they be exempted from further taxation.

These were all approved.

The President: The next business is the report of the Nominating Committee.

THE REPORT OF THE NOMINATING COMMITTEE was presented by Dr. H. G. Howe, and was as follows:

Mr. President and Fellows of the Connecticut Medical Society: Gentlemen, your Committee on Nominations respectfully present the following report. We nominate the following gentlemen for the various offices, Committees and Delegates for the ensuing year:

President.

W. H. Carmalt.

Vice-President,

E. H. Welch.

Treasurer.

W. W. Knight.

Assistant Secretary.

H. S. Miles.

Committee on Matters of Professional Interest in the State.

F. A. Morrell.

L. B. Almy.

Wm. Porter, Jr.

Committee to Nominate Physician to the Retreat for the Insane.

H. L. Swain,

T. F. Rockwell.

Committee on Honorary Members and Degrees.

J. W. Wright,

C. C. Gildersleeve.

H. S. Fuller.

Committee of Arrangements and Anniversary Chairman.

W. T. Bacon, W. R. Steiner,
E. R. Lampson.

Committee on Medical Examinations.

W. L. Barber.
Dissertator.

C. J. Bartlett.
Alternate Dissertator.

J. E. Bailey.

Member of House of Delegates, American Medical Association.

Gustavus Eliot.
Alternate.

H. G. Howe.

Member of Auxiliary Committee on Legislation, American Medical Association.

E. J. McKnight.

Delegates to Maine Medical Association.

P. H. Ingalls, S. B. Overlock.

Delegates to the New Hampshire Medical Society.

J. B. Kent, F. B. Willard.

Delegates to the Vermont State Medical Society.

M. M. Johnson, J. B. Waters.

Delegates to the Massachusetts Medical Society.

H. G. Howe, Rienzi Robinson.

Delegates to the Rhode Island Medical Society.

W. L. Higgins, M. C. Hazen.

Delegates to the Medical Society of New Jersey.

C. A. Lindsley, J. H. Granniss.

Delegates to the New York State Medical Association.

O. T. Osborne, L. B. Almy.
O. C. Smith, J. G. Stanton.

The President: You have heard the report of the Nominating Committee. The election, according to the By-Laws will be by ballot, unless some motion is made to the contrary.

Dr. Lindsley: Mr. President. I move that the Secretary case the ballot of the Society for the gentlemen who have been nominated for these respective offices by the Nominating Committee.

Motion adopted.

The Secretary reported that he cast an affirmative ballot for all of those gentlemen who had been nominated for their respective offices by the Nominating Committee.

The President: The next business in order is the report of the

COMMITTEE TO NOMINATE ESSAYISTS ON THE PROGRESS OF
MEDICINE AND SURGERY.

Dr. A. R. Diefendorf presented the report, recommending as reporters on Progress of Surgery, Drs. Charles C. Godfrey, of Bridgeport, and B. Austin Cheney, of New Haven.

Reporters on the Progress of Medicine, Drs. D. C. Brown, of Danbury, and John C. Lynch, of Bridgeport.

Motion made and seconded that the report be accepted.

Motion carried.

The Report of the

COMMITTEE ON HONORARY MEMBERS AND DEGREES
was called for and rendered by Dr. C. A. Lindsley as follows:

Mr. President: If it is proper, as seems to have been the practice on previous occasions, to endorse the nomination of the Committee of last year, we do so with en-

tire unanimity and the hearty approval of the election of Prof. William Osler, M. D., of Baltimore.

Your Committee further recommend as candidates for election next year Dr. George M. Sternberg, of Washington and Dr. Francis Delafield, of New York City.

Dr. Sternberg, the late Surgeon General of the United States Army is a man of world-wide reputation as a scientist and author. He entered the service of the United States as Assistant Surgeon in the Army in 1861 and served continuously until retired for age in 1902. He was appointed Surgeon General in 1893 and continued until retired by age. His active service therefore covers the entire period of the Civil War, of the Spanish-American War, and the subsequent insurrection in the Philippine Islands. He served also in two Indian Wars, and was promoted "for gallant service for performance of professional duty under fire in action against Indians at Clearwater, Idaho, July 12, 1877."

Dr. Sternberg has been President of the American Public Health Association, of the American Medical Association, and of the Association of Military Surgeons. He is an Honorary member of many medical and scientific Societies in this country and in Europe.

During his administration as Surgeon General, he established the Army Medical School and the Hospital for Tuberculosis cases at Fort Bayard, N. M. He organized the Board of Medical Officers that led to the discovery under Major Walter Reed, that yellow fever is transmitted by mosquitoes.

It is unnecessary to make a more extended notice of a candidate whose reputation is so familiar to us all.

We would present the name also of Dr. Francis Delafield, former Professor of Medicine, College of Physicians and Surgeons, Columbia—as an honorary member of the Connecticut Medical Society. Dr. Delafield was born in 1841, in New York City, where he received his

early education and entered Yale, where he graduated in 1860.

He studied medicine at the College of Physicians and Surgeons and received his degree in 1862. After serving in the Hospitals of New York, he commenced practice.

He was soon after appointed Attending Physician at Roosevelt Hospital. He accepted the appointment of Professor of Medicine in the College of Physicians and Surgeons in 1882, where he has earned great distinction as an investigator and teacher. He is a member of the New York State Medical Society, of the Academy of Medicine and the Pathological Society, and also of the Century, Metropolitan and Yale Clubs. Yale gave him the degree of Doctor of Laws in 1890. He has been an extensive contributor to Medical literature and was co-author with Dr. Prudden of the Handbook of Pathological Anatomy and Histology and is now issuing a revised edition of lectures on "The Practice of Medicine With Cases and Charts." He is held in high esteem by the medical profession throughout the country.

The report was accepted and Dr. Osler elected an Honorary member.

THE REPORT OF THE COMMITTEE ON LEGISLATION

was read by the Secretary in the absence of Dr. McKnight, the chairman.

As there has been no session of The General Assembly since the last Annual Meeting of this Association, no action has been taken by the Legislative Committee. In consideration of the fact that a committee of the American Medical Association has been organized to formulate a standard Medical Practice Act to be considered by the different States and that the next session of the General Assembly will occur previous to the next Annual Meeting of this Society your Committee takes the liberty of offering the following resolution:

Resolved, That the President, Vice-President and Sec-

retary of the Coneneticut Medical Society, the members of the Committee on Legislation and the members of the Committee on Medical Examination be appointed a committee with power to take such action as they may deem advisable in relation to any change in the laws at present regulating Medical Practice in this State.

Respectfully Submitted,

E. J. McKNIGHT,

Chairman.

The Report was adopted.

Dr. Donaldson: Mr. President, it seems to me 'we ought to take some action in regard to providing for a change in our charter in keeping with our constitution and By-Laws, and if it is in order I would move that the Committee on Legislation be required and requested to look after this matter in the next session of the Legislature to secure the necessary changes and alterations.

Motion duly seconded and adopted unanimously.

The Report of the Committee on Medical Examinations was then read by the Secretary of the Committee, Dr. C. A. Tuttle.

ELEVENTH ANNUAL REPORT OF THE COMMITTEE ON MEDICAL
EXAMINATIONS.

To the President and Fellows of the Connecticut Medical Society :

Your committee appointed to conduct the examinations of candidates for license to practice medicine in this state, presents herewith a summary of the work done for the year ending to-day. The committee has held six meetings and in obedience to the statute has held three examinations, each extending throughout two days. There have been examined, seventy-six candidates in general practice, of whom fifty-seven, just seventy-five per cent. were found qualified and certificates grant-

ed. This number examined is eleven less than last year and six less than the previous year. We have rejected nineteen, or twenty-five per cent. of the applicants, as against 12.6 per cent in 1903. While the general qualification of the candidates was not quite equal to that of last year and would account for a certain percentage of rejections, the increased rigidity of markings was responsible for the larger part. We have also examined four in midwifery and have found three qualified. Numerous others have presented themselves but could not be admitted to the examination as they were unable to write in any language.

One year ago there were 1,601 licensed practitioners in the state, or one to every 593 of the population—to-day there are 1,615 or one to every 595.

One year ago there were 1,601 licensed practitioners in secured the amendment to the Medical Practice Act, giving to our committee the privilege of accepting the licentiates of other states, without examination. For many reasons we have thought it inadvisable to make use of this privilege. It is held that true reciprocity, (that is, equal exchange), must be the basis of such a condition, and few, if any of the eastern states are willing to reciprocate with any other state. If true reciprocity did not exist the injustice worked to resident practitioners in the border towns and in shore and mountain resorts would be great. Again, some states are admitting to practice, without examination, graduates of medical schools within their borders. Of course Connecticut cannot reciprocate with such. Pennsylvania has recently withdrawn from her reciprocal relations with New York. While we may in New England and some of the Atlantic border states arrange by mutual agreement a common standard, and indeed a plan is under consideration at present, we do not presage for the near future any general reciprocity.

That we have maintained as high a standard of requirement in subjects medical, as the near-by states is shown by marks given to the following candidates: A, was examined in New York state and given a general average of 86.5 per cent. while in Connecticut soon after he received a rating of 82.5 per cent.

B, was marked in New York, 91.8 per cent. and in Connecticut, 84.8 per cent.

C, received in New York, 85 per cent. and in Connecticut 77.5 per cent.

D, was marked 83.8 per cent in Pennsylvania and 82.9 in Connecticut.

E was given a general average in New Jersey, of 83.2 per cent. and in Pennsylvania of 82.7 per cent. In Connecticut we found that measured by our standard, he was entitled to 75.6 per cent. only. In each of these states the passing requirement is the same as ours, that is, 75 per cent. One state is unwilling to compare averages at all.

We again urge upon the Legislative Committee the advisability of securing an amendment to the law which shall require of every candidate for examination, a definite educational qualification, preliminary to his Medical Course. It must be with great chagrin that a medical man looks at a catalogue of one of our eastern universities and finds that of the freshman class in law, numbering eighty-five there are twenty-one with bachelor's degrees, 25 per cent. In Theology, eighteen out of twenty-one or 85.7 per cent. In Forestry, twenty-five out of thirty-two, 78 per cent. and in Medicine seven out of fifty-one or 13.6 per cent. This is an undesirable discrepancy. We may not yet be in a position to demand a Bachelor's degree, but we should at least require the equivalent of an ordinary high school education. Practically it may be less necessary for the practicing of medicine than of Theology or Law to have and use a college education,

but it is more essential for the welfare of humanity that he be better grounded in his profession.

To this end, not only must he have the preliminary education just mentioned, but a certain amount of post-graduate or hospital work. We are more and more impressed each year, with the need of a hospital training for all students, subsequent to, or as a part of their regular, yet proportionately lengthened medical course. We look forward to the time when one or two years of hospital interior life will be demanded by State Boards and therefore become a part of all advanced medical school curriculum. The committee has noticed also the tendency toward specialization on the part of the candidates. Many have evidently been allowed to employ their time in the unusual and rare cases and phrases of medicine and surgery at the sacrifice of deeper general knowledge. We must deprecate strongly this tendency of Medical Colleges, to allow under-graduates thus to lose sight of the main object of their medical course.

The necessity for a Medical Practice Act and the warrant for the time and labor given to medical examinations and education by your committee will, I think be apparent if you will allow me to read a few answers which were given to questions at our last examination:

1. Question.—Describe the perineal body: Give its functions.

Answer. Its function is to distend the vagina and all its parts so as to allow the free passage of the child.

2. Q.—State your method of procedure in twins pregnancies.

A.—I would not do anything but wait for developments, and deliver the first one that came and cut and tie the cord.

4. Q.—Describe and give the pathology, diagnosis and treatment of Vulvo-Vaginal Thrombosis.

A.—I think I would cut it out, that is, if I understand the right meaning of the word (Thrombosis.)

His knowledge of anatomy is profound.

Question.—Describe the fourth ventricle.

Answer.—The fourth ventricle, duty or office is to force the blood through the aorta and lungs and through the body.

Q.—What anatomic structures would be cut in an amputation of the upper third of the leg.

A.—Of course all the muscles would be cut, the names of which I do not remember.

You may think him brighter in practice.

Q.—Under what condition is the area of cardiac dullness increased? Under what diminished?

A.—Cardiac dullness is increased by motion and diminished by keeping quiet.

Q.—Give the symptoms and pathology of Anterior Polio-myelitis.

A.—The symptoms and pathology of Anterior Polio-myelitis is not very favorable for the patient.

In surgery he has this to say:

Q.—Stricture of esophagus, (a) Pathology, (b) treatment.

A.—It is very dangerous. I don't think an operation such as cutting into the esophagus would help the patient at all. Give the patient Gelsemina in very large doses, will cure the patient if not, will help the patient very much.

But he reaches his climax in *Materia Medica* when in answer to the question.

Q.—What is Hypodermoclysis? (a) technique and Composition. (b) Therapeutic uses, he says:

A.—Technique is a new remedy to me. Living out in Colorado have not had any experience with it. I presume it is good, etc., etc.

The secretary of your committee attended the meeting in Boston, of the New England Confederation of Examining Boards, and presented a paper upon the Medical Practice Act of our State and demonstration of the workings of a three-board system. The meeting was given over to a discussion of this paper, and relevant topics. Dr. J. W. Wright of Bridgeport, a former member of this committee, was re-elected president.

With this year ends the term of Dr. Barber as a member of this committee. He has given freely of his time and energy for years and his influence will long be felt.

Appended is a list of the successful candidates. A copy of the rules, and a set of the questions used at our last examination.

Respectfully submitted,

CHARLES A. TUTTLE, M.D.,

Secretary.

SUCCESSFUL CANDIDATES FROM JULY, 1903 TO JULY, 1904.

JULY 1903.

Ryan, J. P.—P. & S., N. Y., 1903.

Bean, W. H.—Yale, 1903.

Klein, A. W.—Univ. M. C., 1889.

Whinshall, A. G.—Royal Coll. P. & S., 1892.

Ludington, W. A.—Yale, 1902.

Davenport, A. H.—Se. Carolina, 1903.

Sauer, E.—Jefferson, 1903.

Lane, J. E.—Yale, 1903.

Swenson, A. C.—Yale, 1902.

Harrison, J. F.—Jefferson, 1903.

Budd, F. F.—Yale, 1903.

Atlee, W. H.—P. & S., N. Y., 1899

Watkins, L. A.—Yale, 1903.

Fitzgerald, C. J.—U. of Vermont, 1898.

Bridge, J. L.—Harvard, 1903.

Farrell, J. E.—Univ. of Baltimore, 1903.
 Roland, E. J.—Baltimore Medical, 1903.
 Glynn, D. E.—Baltimore Medical, 1902.
 Gatshell, D. H.—Univ. of Vermont, 1902.
 Ward, H. W.—Baltimore, Medical, 1903.
 Hill, A. J.—Niagara, 1886.
 Ryan, F. W.—Baltimore Medical, 1903.
 Loeb, J. A.—Yale, 1903.
 Bugbee, Alice G.—Cornell, 1903.
 Backus, H. S.—Long Island Coll. Hospital, 1903.
 Faucett, F. S.—P. & S., N. Y., 1903.
 Willard, F. O.—Univ. of Vermont, 1900.
 Eliot, H. W.—Univ. of Vermont, 1898.

NOVEMBER, 1903.

Boynton, F. U.—Univ. of Michigan, 1903.
 Krause, E. S.—Yale, 1902.
 Donovan, S. F.—P. & S. (Baltimore) 1902.
 Foote, E. M.—Harvard, 1890.
 Harrington, J. L.—Jefferson, 1903.
 Cassidy, Mary C.—Woman's Medical College, 1903.
 Hodgson, T. C.—Toronto, 1894.
 Hessler, H. P.—Yale, 1903.
 Cooke, T. E.—Syracuse, 1898.
 Roberts, A. J.—Harvard, 1902.
 Ives, E. B.—Yale, 1903.
 Thompson, P. B.—N. Y. Univ. and Bellevue, 1900.
 Grady, J. A.—Georgetown, 1903.

MARCH, 1904.

Allyn, L. M.—Univ. of Penn., 1903.
 Beach, W. P.—P. & S., N. Y., 1881.
 Moulton, C. D.—Univ., of Penn., 1902.
 Formichella, G.—Naples, 1898.
 Heublein, A. C.—P. & S., N. Y., 1902.
 Huga, J. G.—P. & S., (Baltimore), 1903.
 Keane, R. B.—N. Y. Univ. and Bellevue, 1903.

- Lyman, D. R.—Univ of Virginia, 1899.
Mahoney, J. G.—Yale, 1903.
Martin, N. F.—P. & S. (N. Y.), 1900.
Pendleton, C. E.—Yale, 1903.
Pierson, J. C.—Tufts, 1903.
Rowley, R. L.—Yale, 1903.
Ryles, J. F.—Yale, 1902.
Sandy, W. C.—P. & S., (N. Y.), 1901.
Williams, R. May—Boston Univ., 1903.

RULES FOR EXAMINATION.

1. Examinations will be held on the second Tuesday of March, July and November, at the City Hall, New Haven, beginning at 9:30 A. M., and lasting two days, closing at 4:30 P. M. of the second day.

2. Examinations will be conducted in writing in the English language.

3. Examinations for general practice consist of ten questions in each of the following branches:

1. Anatomy. 2. Surgery. 3. Materia Medica, including therapeutics. 4. Practice, including pathology and diagnosis. 5. Obstetrics, including gynecology. 6. Physiology. 7. Medical Chemistry and hygiene.

4. In order to be admitted to practice, the applicant must obtain a general average of 75 per cent. In no branch shall this percentage be less than 60, and in Practice, Obstetrics and Surgery the minimum requirement will be 65 per cent.

5. Examination fee \$15.00, payable in advance on the first day of examination.

6. Candidates once rejected must pay full fee on another trial.

7. All candidates must be graduates of some reputable Medical College and must present their diplomas, (or a certificate from the Dean of the Medical College) for inspection, to the Secretary of the Board at the open-

ing of the season. Those having Bachelor's degrees in Arts or Sciences will please so specify.

8. Candidates must make formal application (blank enclosed) to the Secretary at least five days before the date of the examination.

9. Questions used at some former examinations will be found in the yearly Proceedings of the Connecticut Medical Society—the Board is unable to supply copies.

10. A license or an examination in another state is not accepted by this Board. All candidates must undergo the regular examination.

DIGESTS OF THE LAWS OF 1902–1903.

a. No person shall, for compensation, gain or reward, received or expected, treat, operate or prescribe for any injury, deformity, ailment, or disease, actual or imaginary, of another person, nor practice surgery or midwifery, until he has obtained a certificate of registration, and then only in the kind or branch of practice stated in said certificate.

b. No person shall obtain a certificate of registration until he has passed a satisfactory examination before one of the examining boards appointed for the purpose, nor until he has filed duplicate certificates signed by a majority of said examining board, stating that they have found him qualified to practice either medicine, surgery, or midwifery, nor until he has filed duplicate statements subscribed and sworn to by him upon blanks furnished, giving his name, age, place of birth and present residence, stating of what medical college he is a graduate, and the date of such graduation, together with such other information as shall be required. No person shall be eligible to said examination until he presents to the board, by whom he shall be examined, satisfactory evidence that he has received a diploma from some legally incorporated medical college. Any person passing such

examination and filing said certificates and statement shall receive from the State Board of Health, upon payment of two dollars, a certificate of registration, which shall state that the person named has been found qualified so to practice.

c. An applicant rejected by an examining board is eligible to re-examination at any subsequent regular meeting of the Board.

RULES FOR CONDUCTING EXAMINATIONS.

First. Help of every kind must be removed from the reach and sight of the candidate. Any candidate detected trying to give or obtain aid may be instantly dismissed from the room, and his or her paper for the entire work canceled.

Second. Questions must be given out and answers collected punctually at the time specified for that section.

Third. If the candidate withdraws himself or herself without permission, from the sight of the examiner, his or her examination shall be closed.

Fourth. All examinations shall be in writing. Pens, blotters, paper and ink will be supplied by the Secretary.

Fifth. The examination shall continue two days, the sessions of the first day being from nine-thirty to eleven, eleven to one, two to four, four to six, respectively; the sessions of the second day being the same, but closing at four-thirty instead of six o'clock.

EXAMINATIONS IN MIDWIFERY.

1. Examinations in Midwifery will be held at the same time and place as for General Practice and under the same rules.

2. Applicants to practice Midwifery will be examined in Midwifery only and must obtain a marking of 75 per cent.

3. Examinations will be in writing; but may be taken in the language of the applicant. The applicant to furnish and pay an interpreter acceptable to the Board.

4. The examination fee will be \$10.00 and is payable at the time of taking the examination.

It is unlawful to practice in this State while waiting for an examination.

QUESTIONS USED AT THE LAST EXAMINATION.

PRACTICE, PATHOLOGY AND DIAGNOSIS.

(Two and one-half hours), March 8th and 9th, 1904.

1. Give the etiology, physical signs and symptoms of lobar pneumonia.

2. Under what conditions is the area of cardiac dullness increased? Under what diminished?

3. Differentiate between entero colitis and cholera infantum.

4. Give the symptoms and pathology of anterior poliomyelitis.

5. Name six pathogenic bacteria and state what conditions favor their development in the body.

6. Give the causes of sudden death.

7. Glaucoma, symptoms and treatment.

8. What conditions produce accentuation of the first sound of the heart? What of the second sound?

9. Describe a case of tinea favosa and give the etiology and treatment.

10. Differentiate between carcinoma and sarcoma pathologically.

PHYSIOLOGY.

(One and one-half hours).

1. What alimentary principles are found in milk? Briefly describe the digestion of milk.

2. What causes the pulse? State what conditions, other than disease, modify the pulse.
3. What are the vaso-motor nerves and where are their centres?
4. Name the two chief divisions of the nervous system, and explain the difference in function between an afferent and an efferent nerve.
5. What route does fat take to reach the blood-stream?
6. Is the formation of fat from sugar a synthetic or analytic process? Describe it.
7. Give the origin and function of the different fibers of the tri-facial nerve.
8. Give the physiological properties of hemoglobin.
9. Explain the equalization of animal heat.
10. Describe the temporary and permanent teeth and usual age for the eruption of each.

ANATOMY.

(Two Hours).

1. Give branches of internal iliac artery.
2. Name the bones and ligaments forming the ankle joint and give their relations.
3. Draw and give boundary of the triangles of the neck.
4. Give origin and distribution of third division of the fifth pair of nerves.
5. Describe the fourth ventricle.
6. Describe the upper third of the femur.
7. What anatomic structures would be cut in an amputation of the upper third of the leg?
8. Give the origin, insertion, nerve supply and action of the following muscles; pronator radii teres, biceps, and levator ani. describe each separately.

9. Describe the kidney, giving its relation and also the relation of the structures entering and leaving it.

10. Give a brief anatomy of the entire alimentary tract.

OBSTETRICS AND GYNECOLOGY.

(Two Hours).

1. Describe the perineal body. Give its functions.

2. Give the management of occipito-posterior position of the presenting head.

3. Describe retro-vaginal fistula; give cause and treatment of it.

4. Give the traumatic effects of labor on the child.

5. How would you differentiate ovaritis from a lateral uterine fibroma? from salpingitis?

6. What changes occur in the uterus during pregnancy? after delivery?

7. State your method of procedure in twin pregnancies.

8. Describe and give the pathology, diagnosis and treatment of vulvo vaginal thrombosis.

9. How do you prevent mammary abscesses?

10. Give the prevention and treatment of acute streptococcus infection (puerperal septicemia.)

SURGERY.

(Two Hours).

1. Give in detail the histology of the circumscribed nodule of tuberculosis (tubercle).

2. Give the symptomatology of (a) primary and (b) secondary syphilis.

3. Describe your method of examining the heart preliminary to the administration of a general anesthetic and state what conditions of that organ would render the administration of any such anesthetic extra hazardous.

4. Describe in full detail the operation of trephining the skull.

5. Stricture of the esophagus (a) pathology, (b) treatment.

6. Treatment of penetrating wounds of the abdomen?

7. Pathology of ascites due to cirrhosis of the liver.

8. How has spontaneous cure of last named condition sometimes taken place and what operative procedure may be undertaken to further the same. (Morison's operation described)?

9. Symptoms and diagnosis of senile hypertrophy of the prostate?

10. Fracture of the patella (a) diagnosis, (b) treatment by fixation with and without incision.

CHEMISTRY AND HYGIENE.

(One and one-half hours).

1. How does urea originate in the body? In what morbid conditions is the amount of urea diminished, and in what increased?

2. Describe carbolic acid. Give symptoms and treatment of carbolic acid poisoning.

3. What are proteids? From what are they derived? Name the chief proteids.

4. What methods can our Health Board adopt to restrict the prevalence of tuberculosis?

5. What diet and manner of living favor the formation of uric acid?

6. Give at length your views as to the question, "Can ice transmit disease?"

7. Give the formula of the chlorate, bromate and iodate of sodium.

8. How may river water be purified?

9. What form of arsenic is found in wall papers,

prints, etc? How do they give rise to poisonous symptoms?

10. How do you test urine for glucose? Name two of the best tests.

MATERIA MEDICA AND THERAPEUTICS.

(Two Hours).

1. What is hypodermoclysis? (a) Technique and composition, (b) therapeutic uses.

2. Give the physiological action of aconite.

3. Name the incompatibilities of veratrum viride, quinine, iron.

4. Give the officinal name of oil of wintergreen and its therapeutic uses.

5. The physiological action and therapeutic uses of amyl nitrite.

6. Give the therapeutic uses of thyroid extract, pancreatin, pepsin and supra-renal extract.

7. Give the dose of the following alkaloids: aconitine, digitaline, cocaine hydrochlorate, pilocarpine hydrochlorate.

8. Therapeutic uses and dose of (a) croton oil, (b) elaterium.

9. Give the detailed treatment of tape-worm, using aspidium.

10. Write a prescription containing four ingredients to be used as a diuretic and diaphoretic and state how each ingredient acts.

The Report was accepted and adopted.

The Committee on Arrangements, through Dr. Gilbert, reported that Dr. Whittmore had invited the members of the Society to attend a reception tendered by him at the New Haven Country Club, immediately after the close of the exercises Thursday afternoon. A trolley car would be in waiting at that time at this building.

The President: The next in order is miscellaneous business.

Dr. Donaldson: Mr. President, under the head of County Resolves should have come in a resolution acted upon by the Fairfield County Society at its Annual Meeting in April, which is in line with the work of the American Medical Association in connection with the recommendation of that committee.

Resolved: That the Connecticut Medical Society endorse the work of the American Medical Association on the control of venereal diseases, and that the President appoint a committee of two to co-operate with this committee of the American Medical Association.

The Committee desired to have each State Society appoint a local committee in each society to co-operate with this general committee of the American Medical Association. Last year a good deal was done in the meeting at New Orleans in regard to this subject of the control of venereal diseases, and this year the committee is going to have a very interesting symposium on that subject at Atlantic City, and I hope the Connecticut State Society will fall in line and see that the committee is appointed in this state to co-operate with them. I would like to have the original wording of my resolution adopted. It was simply through the omission of the Clerk in failing to transmit it, that it failed to reach the committee on County Resolves.

"Whereas—The rapidly increasing extent of venereal disease is such as to seriously menace public health, and more so than all other contagious diseases,—and

Whereas—Our National Association is seeking to adopt measures looking to the control and prevention of this scourge,—be it

Resolved—That the Connecticut Medical Society at its next meeting be requested to appoint a Committee to

consider the best methods of public control and prevention of venereal disease—said Committee to co-operate with the similar Committee of the American Medical Association.”

The motion was seconded and adopted.

The President: Is there any other business?

The Secretary: We ought to lay a tax. I move that a tax of \$2.25 be laid on each member of the Society.

Dr. Carmalt: Mr. President, that brings up the question that has been brought forward by Drs. Root and Swasey with regard to the expenses of the meeting. The Committee of Arrangements have made the statement more than once that they could not do without the exhibits, because they pay so much rent, otherwise they would have to lay an assessment for the dinner. Now it seems to me it is highly proper that we pay for our own dinners. I cannot see that we want to have our dinners paid for by the exhibitors, and I must say I think the dinner ought to come out of the State Society, and not from individual subscriptions. (Applause). I feel very strongly about that, that it should be a tax on the whole Society, and then I think we will get more members than we do now, and I certainly think a tax of five dollars a year would not be too much to pay. I move that we make the tax three dollars.

Dr. Robinson said he thought five dollars was too much. Including expenses of car-fare and hotels, five dollars tax would be too expensive for the Delegates, and it would deter men from coming to the Society, and they would not increase their membership.

Dr. Harris: I would like to inquire how much money we get from the exhibits ordinarily.

Dr. Mailhouse: Dr. Gilbert tells me about \$180 each year.

Dr. Harris: How many members have we in the Society?

The Secretary: 739.

Dr. Harris: I should think 25 cents extra might pay for the expenses.

Dr. Mailhouse: I move to amend the motion by adding 25 cents, and make the tax \$2.50 for the next year.

Motion seconded and adopted unanimously.

The one hundred and twelfth Annual Meeting of the President and Fellows thereupon adjourned at 6:05 P. M.

THE ANNUAL CONVENTION.

The Annual Convention was called to order by the President at 10 o'clock Tuesday morning, May 26. The first thing in order was the

SECRETARY'S REPORT.

The membership of this Society is seven hundred and thirty-six, divided among the Counties as follows :—

Hartford, 1903,	174	
New members,	7	
	<hr/>	
	181	
Died,	3	
Left the State,	2	
Removed,	1	
	<hr/>	
	6	
A net gain of 5		175
New Haven, 1903,	210	
New members,	8	
Returned from out-		
side the State,	1	
Transferred from		
Windham County,	1	
	<hr/>	
	220	
Died,	1	
Left the State,	2	
Removed to Litch-		
field County,	1	
	<hr/>	
	4	
A net gain of 6		216

New London, 1903,	52	
New members,	4	
	<hr/>	
	56	
Died,	1	
A net gain of 3		55
Fairfield, 1903,	127	
New members,	10	
Reinstated,	1	
	<hr/>	
	138	
Died,	1	
Left State,	1	
Dropped,	5	
	<hr/>	
	7	
A net gain of 4		131
Windham, 1903,	37	
New members,	1	
Reinstated,	1	
	<hr/>	
	39	
Transferred to New		
Haven County,	1	
A net gain of 1		38
Litchfield, 1903,	53	
New members,	3	
	<hr/>	
	56	
Died,	1	
Removed to Hart-		
ford County,	1	
Removed from State,	1	
	<hr/>	
	33	
No change		53

Middlesex, 1903,	46	
New members,	16	
	<hr/>	
	52	
Died,	1	
Left State,	1	
A net gain of 4		50
Tolland, 1903,	14	
New members,	4	
	<hr/>	
	18	
A net gain of 4		18

This is an entire gain of twenty-three, last year's membership having been seven hundred and thirteen. A careful glance of this movement shows a cheerful condition. Every county has gained in membership excepting one which has held its own. It is good to see a growth in the smaller counties.

The increase in new members last year was eighteen: this year it is twenty-five. One of the most encouraging things in our report as we look it over is that so few have been dropped for non-payment of dues. This has always kept down our increase because we have lost so many each year. But in only one county do we find any such record. We believe it to be largely attributable to the position of the American Medical Association which demands payment of dues as a condition of membership. And we find that a number of men who had previously dropped out have re-entered the society. This denotes a prosperous and healthy condition of affairs.

The names of new members with graduation and residence are:—

Eckley Raynor Storrs, Jefferson '99, Hartford.

Ernest Alden Wells, B. A., Yale '97, Johns Hopkins, '01, Hartford.

- Orran Alexander Moser, Yale '92, Broad Brook.
William Harold Van Strander, Univ. Vermont, '00, Hartford.
James Henry Conklin, Univ. Vermont, '99, Hartford.
Louis David Henn, Univ. N. Y., '98, New Britain.
Henry Merriman Steele, Ph. B., Yale, '94, Johns Hopkins, '02, New Haven.
Albert Eugene Von Tobel, B. A., Yale, '96, Yale 99, Meriden.
Francis Henry Reilly, Yale, '97, New Haven.
Willis Ellis Hartshorn, Ph. B., Colorado College, '95, Univ. Minnesota, '98, New Haven.
Richard Foster Rand, Ph. B., Yale, '95, Johns Hopkins, '00, New Haven.
John McIntosh Shepard, Univ. N. Y., '90, Madison.
William Robert Goodrich, Med. Chi., Phil., '02, Waterbury.
Victor Alexander Kowalewski, B. A., Yale, '99, Yale, '02, West Haven.
John Harry Evans, P. & S., N. Y., '02, Norwich.
Daniel Sullivan, Univ. N. Y., '97, New London.
Mary Cecilia Cassidy, Women's Med. Coll., Phil., '98 Norwich.
William Martin Hill, Univ. Va., '97, Noank.
Arthur Robert Turner, A. B. Amherst, '84, Univ. Paris, '94, Norwalk.
David Walter McFarland, Univ. N. Y., '85 'Greens' Farms.
Frank William Stevens, Yale, 1900, Bridgeport.
George Howell Warner, Yale, '97, Bridgeport.
Daniel Michael Driscoll, P. & S., N. Y., '00, Bridgeport.
John Joseph Cloonan, P. & S., Baltimore, '97, Stamford.
Charles Eugene Blackman, L. I. Coll. Hosp., '96, Bridgeport.
David Henry Monahan, A. M., Manhattan, '83, Portsmouth, 1900, Bridgeport.

George Francis Sheedy, Ph. B., Yale, '99., Yale, '02, Bridgeport.

Dean Foster, A. M. Univ. Kansas, Yale, '99, Stamford.

Orrin Russell Witter, P. & S., N. Y., '01, Chaplin.

Ernest Russell Kelsey, Maryland Med. Coll., '01, Winsted.

Joseph Robinson, P. & S., N. Y., '98, West Cornwall.

Timothy Meagher Ryan, A. B., Loyola College, Baltimore Med. Coll., '02, Torrington.

James Henry Kingman, A. B., Yale, '82, P. & S., N. Y., '85, Middletown.

Thomas Patrick Walsh, Univ. Vt., '02, Middletown.

Sarah Edith Ives, Women's Med. Coll., Pa., '98, Middletown.

Frederick Barton Bradeen, Univ. Pa., '99, Essex.

David Austin Fox., Univ. & Bellevue, '02, Essex.

Dean Cleveland Bangs, Baltimore Med. Coll., '02, Rockville.

Frederick William Walsh, P. & S., Baltimore, '85, Rockville.

Louis Irving Mason, P. & S., N. Y., '91, South Coventry.

James Stretch, Univ. Coll. of Medicine, Richmond, Va., '02, Stafford Springs.

Of these, forty-one in number, six have the degree of A. B., three of which are from Yale and four have the degree of Ph. B., three of which also are from Yale; so that one-fourth, or twenty-five per cent., have taken either an Academic course or one in Science. Last year we had six Bachelors of Arts and three Bachelors of Philosophy the entire number being thirty-two, so that the percentage last year was better than this, by quite a little.

In medical graduation Yale has the lead with eight, the College of Physicians and Surgeons, New York, has five, the University of New York four, the Maryland Medical College and the Johns Hopkins and University of Vermont each three.

No meeting of the American Medical Association has occurred since the annual meeting of this society. We have been brought into closer touch than ever before with the national organization. We have two representatives in its House of Delegates and on the present basis we can not have a larger number for many years to come. But the fact that the Association bases its membership and requirements on dues actually paid to date has certainly had its influence upon this society. Our losses from unpaid taxes are very small this year; only one county in the State has dropped any member for non-payment of dues.

There have been two deaths among our Honorary members, the first two on the list: Dr. A. J. Fuller of Maine, and Dr. Arthur Ward of New Jersey. Dr. Ward was present at the Annual Meeting of our Society in 1864, as a Delegate from the Medical Society of New Jersey and as was the custom at that time was complimented with an election as Honorary member the following year. Dr. Fuller the same year represented his Society as Delegate and was similarly honored.

The dead are seven in number. William Lockwood Bradley was a graduate of Yale of the class of 1860. This seems to have been a celebrated class. Among its members were Professors George L. Beers, Professor of Materia Medica and Therapeutics, Kansas Medical College, and Francis Delafield of New York, Daniel Cady Eton, Othniel C. Marsh, and Eugene Lamb Richards, of Yale, also William Walter Phelps, known in national councils, and Mason Young, upon the governing Board of the University. In a class of one hundred and nine there were twelve physicians. He graduated from the Yale Medical School in 1864 with Dr. Durell Shepard, and the same year joined this society. The subject of his thesis was "Dysentery in the Army of the United States." He was a Fellow in 1874. At this meeting in

connection with the subject of skin grafting he exhibited a patient from whose head the entire scalp, one of the eyebrows, one ear and part of one cheek had been torn off by machinery. In all about seventy-two square inches of surface had been denuded. A portion of the skull had exfoliated. This very unpromising case had been nine months under treatment, and by the method of skin grafting much progress towards recovery had been made. In the following year he was again a Fellow, as also in 1876, when he was appointed on two committees. In 1880 and 1881 he served as a member of the Committee on Matters of Professional Interest in the State. His contributions as a member of that committee were a Case of Glio-Sarcomatous Tumor of the Cerebrum and Cerebellum, and The Use of Chloral in a Case of Traumatic Tetanus. He prepared papers for this society at various times, which were diverse in character. In 1866 one on Alcohol as a dressing for wounds, with special reference to its employment by M. Nelaton, at the Clinical Hospital, Paris, in 1872, one on skin grafting, in which he detailed the case already alluded to.

Edward Luther Griggs of Waterbury, was also a graduate of 1864, from the Long Island College Hospital, although he spent two years at the Yale School. He was of sterling colonial ancestry. He was a physician of learning, a gentleman of education, a conversationalist of wit and a musician. He was unmarried, became gradually quite a recluse and had practically retired from professional work some years before he died. He joined this Society in 1866, at that time there were but six physicians in Waterbury. His only contribution to the Proceedings is an obituary sketch of Dr. Deacon in 1878.

There is no record as to when Ralph Schuyler Goodwin joined this Society, but his name first appears as a Fellow from Litchfield County in 1874. He was that year a member of the Nominating Committee. He was a grad-

uate of the College of Physicians and Surgeons, N. Y., 1866.

Litchfield County, at that time had thirty-five members and it is interesting to see how little the names have changed. In 1876, 1881, 1882, 1884, 1885, 1887, he was a Fellow. In 1880 he was President of the Litchfield County Association. In 1881, he was chairman of the committee which nominated Professors Prudden and Beckwith to their chairs in the Yale Medical Department. In 1882, at the meeting of the Fellows, he offered a set of resolutions, reaffirming allegiance to the Code of Ethics, condemning and reprobating the action of the New York State Medical Society, and instructing the Delegates at St. Paul to oppose the reception of the New York delegation in any shape or manner. In 1885, he was one of the committee to consider a revision of the charter of this Society, which seemed to be made necessary by the dissolution of the union between the Society and the President and Fellows of Yale College, formed in 1810. He was a member of the committee which arranged for celebrating the centennial of this Society, and which was appointed by its President in 1889. In 1893 he prepared the obituary of Dr. William S. Buel for the Proceedings of that year. In 1896 he wrote for the Proceedings a paper on The Physician as a Sanatarian, and in 1897 he commemorated the discovery of vaccination with one on Dr. Jenner and His Great Work. In 1897 he was elected President of this Society, and in 1898 delivered the address on the Practical Value of Bacteriology in Medicine. Besides this he contributed for the Proceedings in 1879 an essay on Alcohol as a Therapeutic Agent. In 1885 he was appointed a member of the State Board of Health in place of Dr. C. A. Lindsley who, a member, was that year chosen Secretary. Thus it will be seen that both Doctors Goodwin and Bradley did a large work in the medical life of the State.

James William Gordon of Sandy Hook, graduated at Bellevue Medical College in 1888 and united with this Society in 1900.

Ida Rachel Gridley, M. D., joined this Society in 1892, the centennial year, having settled in Collinsville. She was a graduate of the Wesleyan University, Middletown, a. B. A., 1886. Two years later her Alma Mater conferred upon her the second degree in course, M. A., and in 1889, she took her M.D. from the College of Physicians and Surgeons, Boston. In the year 1895, the name appears for the first time as Ida Gridley-Case. Dr. Case was an active worker, interested and enthusiastic in her profession.

Dr. Roger Charles Downey graduated from the University of Vermont in 1892. He united with this Society in 1895 from Portland and in the following year moved to Middletown.

Dr. Samuel Lathrop, a graduate of the College of Physicians and Surgeons, N. Y., 1900, joined the Society from Norwalk, in 1902.

Let me again beseech the County Clerks to send to the President and Secretary of the State Society, and to each of the Clerks of the other Counties, the programs for both the annual and the semi-annual meetings. The visiting of the regularly appointed Delegates, the intermingling as much as possible at our meetings awakens interest, stimulates discussion, draws us closer to one another and helps to unify the profession of the State. The Secretary wishes to express his thanks to those who have been interested enough to correct errors which occurred in his Report as sent out with the annual Announcement.

N. E. WORDIN,
Secretary.

The President: The next business in order is the reports of Delegates to other State Societies.

To the Maine Medical State Association, Delegate Rienzi Robinson. Dr. Robinson, have you any report to make as Delegate?

Dr. Robinson: I have no report to make, gentlemen, from the fact that I received my appointment when away on my vacation, and received it the very day the Maine Medical Association met; so I shifted from the Maine Medical Association to the Massachusetts Medical Society. Being in Boston the day they had their meeting, took my dinner there with them, and had a glorious time. I obtained permission from our Secretary to change from Maine to Massachusetts.

The President: To the New Hampshire Medical Society, Drs. Campbell and S. B. Overlook.

Dr. Overlook: Mr. President, I was unable to be present.

The President: To the Vermont State Medical Society, Dr. H. G. Howe.

Dr. Howe: Mr. Chairman and Gentlemen, I had a very delightful visit to Brattleboro, Vermont, and we were very much pleased with our reception.

There was no response from the Delegates to the Massachusetts Medical Society, nor from the Delegates to the Rhode Island Medical Society, or the Medical Society of New Jersey.

The President: To the New York State Medical Association, Doctors C. E. Skinner and Kimball rendered their Reports, which follow:

In fulfillment of the duties pertaining to my appointment as Delegate to the annual convention of the New York State Medical Association held in New York, October 19th to 22d. 1903, I presented myself at the Academy of Medicine on October 19th, and registered as Delegate

from this Society. The first day was given up entirely to transacting the business of the Association, the officers elected for the coming year being Dr. W. H. Thornton, Buffalo, President; Dr. Charles S. Payne, Liberty, N. Y., Vice-President; Dr. Guy D. Lombard, New York, Secretary; Dr. Frederick A. Baldwin, New York, Treasurer; Drs. James W. Grosvener, Buffalo, and E. Eliot Harris, New York, Delegates. The scientific session began on the morning of the second day with a paper by Dr. R. Abrahams of New York, who recommended sea-bathing for a variety of skin diseases and said that no artificial salt-water could compare in the results obtained with the water taken directly from the sea.

This was followed by a paper by Dr. F. J. Douglas of Utica, N. Y., entitled "Stab Wounds of the Abdomen." Dr. Douglas gives it as his opinion that the symptomatology is not to be relied upon exclusively to indicate the line of treatment of these injuries and recommends prompt exploratory incision. He did not believe in probing and recommended that the wound be closed if possible without drainage and that wounds of the viscera ought to be sutured and the peritoneal cavity flushed out with saline thereafter.

Dr. George W. Goler of Rochester followed with a paper upon "The Relation of the Municipal Milk Supply to the Health of Children." The measures taken to secure a good healthful supply of milk for infant nutrition in Rochester during the past five years had resulted in a reduction of the mortality among infants of sixty-five per cent. during the first year of life and of fifty-eight per cent. among children between one and five years of age. The health authorities of the city of Rochester had adopted as a standard of milk purity 100,000 bacteria per c.c. A large number of samples analyzed before this standard had been adopted showed an average of 837,000 bacteria per c.c. Shortly afterward a large number of

samples averaged 796,000 bacteria per c.c. In 1901 the average was 275,000 bacteria with nineteen per cent. of the samples showing over 5,000,000. In 1902 the average was 215,000, seventy-four per cent. of the samples showing less than 100,000, and only six per cent. showing over 5,000,000. Samples from the officially recommended stations, which have been established for the supply of healthful milk for infant nutrition, showed only 14,000 bacteria per c.c., as against 235,000 exhibited by the specimens from the ordinary city milk.

Dr. H. O. Marcy of Boston discussed this paper at some length and favored condensing and refrigerating milk, as that so treated would keep sweet for two weeks. This had been in operation successfully in New Hampshire for a number of years.

Dr. Augustin H. Goelet of New York then read a paper upon "The Causes of Failure after Operation for Nephroptosis." He considered the most active of such causes to be first, delaying the operation after the patient's kidney was hopelessly disabled and his general condition beyond redemption; second, concomitant ptosis of the intestines; third, severe retching and vomiting after operation; fourth, failure to completely detach the colon during the operation; fifth, penetrating the secreting structures of the kidney by sutures; sixth, fixation of the kidney too low down; seventh, too early removal of the sutures; eighth, leaving the drain in too long; ninth, allowing the patient to get up too soon; tenth, failure to properly support the abdomen after recovery.

This paper was followed by an interesting discussion, much of which was too technical to have a place in a report of this character.

Dr. James R. Tuttle of New York next read a paper upon the "Results from Operative Treatment of Cancer of the Rectum." He reported forty-three cases in which he had done complete extirpation, with twenty-two cured

and now living and well after periods of from two to eleven years. In twelve cases the results were entirely unsuccessful. He believes that total extirpation is the only operation which deserves to be performed in this condition and that this was the only operative procedure that had ever saved a single case. Colostomy was only indicated when the malignant growth completely occluded the gut, and did not in his opinion prolong life. Extirpation gives complete relief from pain for at least a while and in many cases produces an absolute cure. He believed that every case of diarrhea lasting over a fortnight should be subjected to instrumental examination of the rectum as a failure to make an early diagnosis was a most prolific cause of death in this disease. Although an immovable carcinoma was usually considered inoperable, yet he had operated on some seemingly hopeless cases and had some perfect results. He did not believe that every case in which the tumor was immovable should be refused operation. Dr. Tuttle exhibited several patients who had been cured for variable periods, one being a woman who had been operated upon eleven years before with no recurrence to date.

Dr. Seymour Oppenheimer of New York read a very technical and interesting paper on "Extradural and Mastoid Disease." He considered that extradural abscess was the most frequent intracranial complication of mastoid disease and that it was very difficult to make an early differentiation from the symptoms. Paroxysmal pains in the head over the affected area associated with exquisite tenderness, as an indicative symptom he considered very valuable. The presence of chills constituted a reason to suspect sinus involvement. During the discussion Dr. F. W. Higgins of Cortland, N. Y., said that pus accumulations from this cause were three times more frequent in the middle than in the posterior fossa.

Dr. E. D. Ferguson of Troy, N. Y., read a paper en-

titled "One of the Dangers in the Surgery of the Biliary Passages." He expressed the belief that an endeavor should be made to produce a symptomatic cure rather than a brilliant operation. The procedure which causes the least shock and produces the best results is usually the making of a temporary biliary fistula after the removal of the gall-stones.

Dr. Ernst Schmid of White Plains, N. Y., read a paper entitled "School Hygiene and the Great Need of Regular Medical Supervision," in which he dwelt at considerable length upon the sanitary problems which enter into the building of the schools, such as the amount of light entering by the windows, color of the walls, etc. He urged the medical profession to exhibit more interest in the securing of the adoption of plans for better constructed schools.

Dr. William E. Park of New York read a very instructive as well as interesting paper upon "Bacteriology and Pathology of Dysentery in Children." He believes that there are several types of the disease, and says that the Shiga bacillus, in his experience, has only been found occasionally. He had used the serum treatment in twenty-five cases with no particular results. He thought, however, that increased experience might show that the method was of some use.

The program for the second day closed with a paper by Dr. Martin B. Tinker of Clifton Springs, New York, entitled "Some of the Less Usual Causes of Post-Operative Elevations of Temperature." Dr. Tinker mentioned among these causes pulmonary emboli, pericarditis, cerebral embolus, phlebitis and malaria. He did not believe that the diagnosis of malaria should be made unless the characteristic micro-organism was demonstrated as presented in the blood.

Much to my regret I was at this time obliged to leave New York and leave the remainder of the report to my

fellow Delegate. The high grade of the papers from both practical and scientific aspects was most noticeable and made the fulfillment of my duties as a Delegate a pleasure as well as a source of instruction.

CLARENCE E. SKINNER.

I wish briefly to record that as Delegate from the Connecticut Medical Society I had the pleasure of attending only the last two days' session of the New York Medical Association, held in New York City October 19-22, 1903. A cordial reception was given me by the members, and the President, Frederick Holme Wiggin, an Honorary Member of this Society. The Literary program was of a high order. Exceptional papers were those on Pneumonia by Dr. Delancey Rochester of Buffalo; Acute Cholecystitis by Dr. J. H. Musser of Philadelphia, and on Ileocolitis in children by Dr. Thomas M. Rotch of Boston. Your Delegate also had the pleasure of attending the banquet given at the Manhattan on the evening of October 22. Among the toasts a member of the clergy brought forward the subject of Euthanasia with a strong argument in its favor. This aroused a member of the New York Bar who followed with a most humorous and convincing argument against it. The sentiment of the assemblage seemed to be about unanimous in opposition to Euthanasia. The banquet also furnished an opportunity for general rejoicing over the actual reunion of the two New York Societies which had been divided for many years.

RUSH W. KIMBALL.

Dr. Garlick then read his Report on the Progress of Medicine and was followed by Dr. Russell with a carefully prepared paper, Report on the Progress of Surgery.

The Report of the Committee on Matters of Professional Interest in the State was then read by Dr. Bart-

lett in the absence of Dr. Foote, Chairman of the Committee.

Visiting Delegates from other States were called upon by the President.

The President: We have some visiting Delegates that we should be glad to receive now and hear from.

From the Maine Medical Association, Dr. E. A. Porter of Pittsfield, and Dr. S. P. Warren of Portland. (Neither of the gentlemen were present.)

From the Massachusetts Medical Society, Dr. J. W. Hannum of Ludlow, and Dr. A. H. Hoadley of Northampton. I believe Dr. Hannum is present.

Dr. J. W. Hannum: I can only say, Mr. President, that it affords me great pleasure to extend to you the greetings of the Massachusetts Medical Society. We are very happy to be represented here and shall hope for a return of your hospitality. (Applause).

The President: From the Rhode Island Medical Society, Dr. Howard Morgan of Westerly.

Dr. Howard Morgan: I am very glad to be here with you, and I am much interested in what I have heard. I haven't anything personal worth mentioning or taking your time. (Applause).

The President: From the New York State Medical Association, Dr. F. H. Wiggin, Dr. J. S. Bierwirth and Dr. W. R. Townsend.

The Secretary: Dr. Wiggin sends this letter:

May 24th, 1904.

Dear Doctor Wordin:—

I regret very much, that owing to the pressure of professional work, I will be unable to attend the 112th Annual Meeting of your Society, which I looked forward to attending with much pleasure.

The two great events which have marked the pro-

gress of our local Association during the past year have been, further experience with the protection of our members by the Association of suits for alleged malpractice, which have been brought against them; and the agreement made by our Association with the Medical Society of the State of New York, to join hands and form one organization.

It may be of interest to your members to know that during the past year, 17 members of our Association residing in various parts of the State, have had suits for alleged civil malpractice brought against them, and have been defended by the Association, and in every instance when the defense was made known to the persons bringing the suits, they were promptly dropped, which serves to show that such protection of members by a State organization is wise and economical.

In regard to the details of the amalgamation of the Society and the Association, my colleagues, Drs. Townsend and Bierwirth, who are to be with you, can tell you better than I, what has been done, as they were both members of the Committee representing our Association.

With best wishes for a pleasant and profitable meeting, I am,

Respectfully yours,

FREDERICK HOLME WIGGIN,

Delegate, The New York State Medical Association.

Applause.

The President: Dr. Bierwirth is with us.

Dr. J. C. Bierwirth: I am deeply grateful for being allowed to be here at your meeting, as this is the first time that I have visited New Haven. My good friend Dr. Eliot has shown me your town, and I have come here now to listen to the scientific side of the meeting, and I hope to be with you this evening. I do not know as

this is the time, Mr. President, to give you any information in regard to the amalgamation of the two State Societies. It will take up too much of your time now; but perhaps this evening, if it is desired, I can give you a sketch in outline of the work that has been done. Personally I am extremely obliged to you for this honor. (Applause).

The President: Dr. W. R. Townsend from the same Society.

Dr. W. R. Townsend: Mr. President. I want to thank you on behalf of our State Association for the magnificent manner in which you received the letter from our colleague Dr. Wiggin, who, perhaps it is known to you, and perhaps it is not known, has been largely instrumental in bringing the State Association of New York to a position of such importance that finally it was considered desirable to have a conference and see whether a union could not be made of the two bodies in the State.

The State Association in New York represents to-day a membership of about 1800; the State Society represents a membership nominally of about 6000. The intention is in the next few weeks to amalgamate these two bodies and have then, we hope, a united profession in New York of about 7000. When such an amalgamation or union is achieved I am sure New York will honor itself by sending a larger and better delegation to the Connecticut Medical Society. (Applause.)

The President: The representatives from the Medical Society of New Jersey, Doctor J. A. Exton of Arlington, and Dr. S. A. Helfer of Hoboken, not being present, the next business on the program is the Dissertation on Medical Psychology by Dr. Rienzi Robinson.

Dr. Robinson read his paper which was received with much applause.

Dr. G. R. Harris of Norwich read his paper on Three

Cases of Obstruction of the Cystic Duct Simulating Appendicitis.

The President: The hour has now come for the President's address on Specialism in Medicine. As the Vice-President does not appear to be in the hall, I will call upon one of the honorary vice-presidents, Dr. Amos Avery, to take the Chair.

Dr. Avery assumed the chair and the President delivered his address which was received with prolonged applause.

The President: According to the program, gentlemen, we take an adjournment at this point until 1:45 p. m. I want to ask you to be as prompt as possible because we shall only have three hours, and we want to make the most of every minute of time.

Recess until 1:45 p. m.

AFTERNOON SESSION.

THURSDAY, MAY 26TH, 1904, 1:45 P. M.

The President: Gentlemen: The Society will please come to order.

The first paper is by Dr. D. C. Brown of Danbury, The So-called Ante-mortem Statement. After the reading Dr. Gilbert announced that Dr. Whittemore has very kindly invited the members of the Society to the Country Club immediately after adjournment, and the motion that when this meeting adjourn, it adjourn at 4:45.

The motion was seconded but was opposed by Dr. Swasey on the ground that the society should remain and do scientific work.

Motion to adjourn at 4:45 adopted.

Dr. D. C. Brown: If, at this time, it is in order, I would like to rise and make a motion that a committee be appointed to take into consideration the paper that was read this morning by Dr. Rienzi Robinson on Medi-

cal Psychology. It seems to me that some of the suggestions made in his paper were particularly valuable. And while it may not be the logical outcome to have a chair on medical psychology, appointed, in the medical schools, I make the motion:

Resolved--That a committee of three to be appointed by the chair, one of whom shall be the president of our Society, to present to the incoming Governor of the State a copy of this paper together with the two copies of the committee reports referred to, and such arguments and facts as the committee sees fit.

Motion seconded and adopted unanimously.

The President named as the committee, Doctors W. H. Carmalt, A. R. Diefendorf and M. Mailhouse.

Dr. Down then read a paper, *Some Phases of Consciousness in Mental Diseases*.

Dr. McKnight followed with a paper on *Cysts of the Mesentery*.

Papers followed in the order given as nearly as possible. One on *The Management of Pneumonia* by Dr. Osborne, one on *Acute Conjunctivitis, Iritis and Acute Glaucoma* by Dr. Anthony Peck, which was discussed by Dr. Holmes of New Britain.

Dr. Swasey had for his topic *A Case of Slow Pulse*.

The President: I am going to postpone the next four cases, gentlemen, and it is not on account of any reflection upon the articles, for they are undoubtedly articles of the first importance. There are two papers that come afterwards that have been furnished in response to a personal appeal by the President, and common courtesy requires we should hear those papers, and if there is any doubt whether we are going to hear any more those papers at least should have a standing, as they have been asked for, and I have no doubt we shall come back to these cases.

I will now ask for a reading of the paper entitled, "A Further Report on the Surgical Treatment of the Enlarged Prostate," by Dr. O. C. Smith of Hartford.

This paper was discussed by Doctors McKnight and E. B. Lyon.

Dr. Bulkley then read his paper—The Finsen Light, X-rays and High Frequency Electrical Currents in Certain Diseases of the Skin—Another Year's Experience, after which Dr. Skinner exhibited two photographs of a case treated with X-ray.

The President: Gentlemen, we have time for just one more paper, and I am going to ask Dr. Carmalt to take the chair while that paper is being read.

Gentlemen, I want to thank you in that you have conferred the honored position of President of the Connecticut Medical Society upon me for the past year and I want to thank you for your forbearance with my shortcomings. I want to thank you also for the kind attention with which you have listened to the papers of the gentlemen who have furnished these papers at my request. The list is now exhausted, and we come upon the list of voluntary papers.

I will now ask my old friend, Dr. William H. Carmalt of New Haven, your President-Elect, to assume the Chair. (Applause.)

Dr. Carmalt upon assuming the chair was received with applause.

He announced the next paper, Aneurism of the Carotid Artery within the Cranium by Dr. J. S. Ely. There being but a few moments left, Dr. Daggett gave a resume of his paper, The Prevention of Typhoid Fever, and made this motion:

Resolved: That the Connecticut Medical Society endorses the general proposition which is now advanced regarding Rural Sanitation and refers it to the State Board of Health.

I make it because I want to bring this matter before the Legislature next winter, and if it has the endorsement of this Society it will mean a great deal more than it does now.

The motion was seconded and adopted unanimously.

The one hundred and twelfth meeting of the Connecticut Medical Society was then declared adjourned.

The following is the entire list of papers presented to the Society for reference to the Committee on Publication:

THURSDAY A. M.

"The So-called Ante-Mortem Statement"—D. C. Brown, Danbury.

"Some Reasons Why We Should Have an Epileptic Colony in Connecticut"—Max Mailhouse, New Haven.

"Some Phases of Consciousness in Mental Diseases"—E. A. Down, Hartford.

"The Contraindications for Surgical Operation in Neurasthenia and Allied Mental States"—A. R. Diefendorf, Middletown.

"Cysts of the Mesentery"—E. J. McKnight, Hartford.

"Three Cases of Obstruction of the Cystic Duct Simulating Appendicitis"—G. R. Harris, Norwich.

"The Management of Pneumonia"—O. T. Osborne, New Haven.

"Some General Remarks Concerning Acute Conjunctivitis, Iritis and Acute Glaucoma"—Anthony Peck, Norwich.

"A Case of Slow Pulse"—E. P. Swasey, New Britain.

"Aneurism of the Carotid Artery within the Cranium"—J. S. Ely, New Haven.

"The Prevention of Typhoid Fever"—W. G. Daggett, New Haven.

"Influenza in Children"—Kenneth E. Kellogg, New Britain.

"Report of Two Cases of Henoch's Purpura"—O. C. Smith, Hartford.

"The Finsen Light, X-Rays and High Frequency Electrical Currents in Certain Diseases of the Skin: Another year's Experience"—L. D. Bulkley, New York.

"A Further Report on the Surgical Treatment of the Enlarged Prostate"—O. C. Smith, Hartford.

All the papers which follow have been referred to the Committee on Publication by the County Associations.

"Talipes Equinus: Its Treatment in the Adult"—L. M. Allen, South Norwalk.

"Mastoiditis"—Dean Foster, Stamford.

"Confusional Insanity"—E. A. Down, Hartford.

"Chemical, Physical and Mechanical Aids in the Diagnosis and Treatment of Disease"—Frederic Schavoir, Stamford.

"The Etiology of Arteriosclerosis"—O. T. Osborne, New Haven.

"The Significance of a Pathological Report to a General Practitioner"—A. R. Diefendorf, Middletown.

"Sudden Death"—A. A. Crane, Waterbury.

"The Benefit of the County Society to the General Practitioner"—Howard O. Allen, Broad Brook.

"The Use of the Uterine Curette"—P. H. Ingalls, Hartford.

"Electricity in the Diagnosis and Treatment of Nervous Diseases"—F. T. Simpson, Hartford.

"Autointoxication"—C. B. Newton, Stafford Springs.

"Acute Nephritis in Infancy"—W. G. Murphy, E. Hartford.

"Treatment of Posterior Displacement of the Uterus"—C. E. Taft, Hartford.

"Carcinoma of the Pancreas"—Ida R. Gridley-Case, Collinsville.

"Movable and Floating Kidney"—John B. Boucher, Hartford.

"Acute Pancreatitis"—E. R. Lampson, Hartford.

"Infantile Scorbutus"—R. M. Clark, New Britain.

"Myxedema"—J. B. Boucher, Hartford.

"Surgical vs. Medical Treatment of Varicose Veins"—D. F. Sullivan, Hartford.

"Coxa Vara"—C. D. Bunce, Hartford.

"The Profession Between Leaves"—W. B. Cogswell, Stratford.

"Diagnosis of Acute Lobar Pneumonia"—W. J. Delaney, Naugatuck.

"Pathology of Acute Lobar Pneumonia"—C. J. Bartlett, New Haven.

"The Diagnosis of Syphilis"—T. M. Bull, Naugatuck.

"The Prognosis of Syphilis"—T. H. Russell, New Haven.

"The Treatment of Syphilis"—W. J. Sheehan, New Haven.

"A Study of Ectopic Gestation in the First Three Months"—H. M. Lee, New London.

"Treatment of Ectopic Gestation, With Report of Twelve Cases"—B. A. Cheney, New Haven.

"The More Common Complications of Pregnancy and Delivery, and Their Management"—O. G. Ramsey, New Haven.

"Surgical Treatment of Nephro Lithiasis"—W. F. Verdi, New Haven.

"The Variola Epidemic in Waterbury"—T. J. Kilmartin, Waterbury.

"Report of a Case of Traumatic Injury to the Retina"—D. J. Maloney, Waterbury.

N. E. WORDIN,
Secretary.

Immediately after the close of the meeting, at five p. m., the members went by open trolley-car, which was waiting in readiness at the door, to the grounds of the Country Club on Whitney Avenue. The ride was very grateful after the hot air of the audience room and Dr. Whittemore very graciously received and entertained his guests. An hour was delightfully spent and all were now ready for the

BANQUET

which was served at the New Haven House at eight o'clock. The tables filled the spacious dining room.

Dr. Gilbert, Anniversary Chairman, happily presided. Grace was said by Rev. Dr. Henry Baker and toasts were responded to as follows:

"The Connecticut Medical Society" President S. B. St. John.

"Yale, The Mother of Many of Us," Prof. Edward. Bliss Reed.

"The Ministry of the Physician," Rev. Dr. Henry Baker.

"Medical Experts," John K. Beach, Esq.

"Our Patients," Dr. J. R. Topping.

PRESIDENT'S ADDRESS.

PRESIDENT'S ADDRESS.

SPECIALISM IN MEDICINE.

Strictly speaking, the only man who may be regarded as a general practitioner in matters of every-day life is a solitary individual—Alexander Selkirk on his desert island. As soon as the second man appears, they instinctively divide the duties between them—one providing the food, the other the shelter. A further increase of numbers develops the advantage of further specialization, and the carpenter, the blacksmith, the hunter and the agriculturist are evolved. Further growth brings the scientist and the professional men, the minister, lawyer and doctor. But the end is not yet, for the expansion of the fields of labor calls for a further differentiation, and the various religious denominations, the different departments of legal practice, and the subdivisions of the practice of medicine spring up by a process of natural evolution. Thus we see that Specialties are a natural, nay, an inevitable result of the growth of communities and the question is not How may they be avoided or prevented? but, How may they be so guided and regulated as to make them of the greatest good to the community?

Some definitions of Specialism are of interest at the outset. Says Seguin "Specialism is the natural and necessary result of the growth of accurate knowledge inseparably connected with the multiplication and perfection of instruments of precision." Morton defines it as "the substitution of precision for vagueness, of a concrete differential diagnosis for an abstract supposition; it is the forced acknowledgment that the average

human mind cannot practically grasp all of medical science, in short, the protest of knowledge against ignorance."

Bulkeley says "The science and art of medicine has like the other sciences, become so vast that no one mind can fully grasp every portion. Every medical man is unconsciously more or less of a specialist, or more qualified in certain lines of knowledge and experience than in others. Specialism is therefore a natural, healthy outgrowth from general medicine." Many infer when you speak of a man having a specialty that you are necessarily speaking of a medical man. This is by no means the case for painters have subdivisions such as portrait, landscape, marine, animal, flower, etc. Engineers are military, civil, mining, electrical, mechanical and so on. Literature is classical, philosophical, historical, fiction, travel and many others. English legal practitioners are divided into Barristers and Attorneys, and Attorneys are subdivided into Attorney-at-Law, Solicitors in Chancery or equity, and proctors in admiralty and ecclesiastical courts. In this country there is but one legal grade, but virtually it is divided into civil, criminal, real estate, commercial, equity, patent, divorce, and many others.

Differentiation is the test of civilization. The farther the community is removed from the savage state, the more highly specialized is it—one man has physical and mental aptitudes different from other men and so special qualifications fitting him for certain work.

In the domain of pure Science the accumulation of scientific facts and the knowledge derived from a study of these facts must reach a point where it is impossible that any one mind can master it all. A very few men like Erasmus or Humboldt have attained extraordinary success in covering very large fields of work but they are the rare exception, and if advance was to depend solely on such exceptional men, progress would be by leaps

with long periods of quiescence between—we all know that it is different—that little by little, each worker contributing his mite—the structure grows, slowly it is true, but steadily.' (Noyes). In this department of Science one would scarcely venture to deny the necessity of Specialists. The accumulation of facts and the sifting and arrangement of those facts with the logical deductions therefrom could not conceivably be brought about save by a mind trained by years of practice. Hence specialism in the Science of Medicine, may be said to have an admitted status. It needs no explanation and no apology. Our theme is with Specialism in Medicine as an Art in the application of the principles and facts handed down to us by Medicine as a Science. The very existence of Medicine as a Profession is a Specialty. Once the lawyer, minister and doctor were one person, and the striped barbers' pole reminds us that formerly the barbers were in a measure the Surgeons of the Community. Every practitioner is more or less of a specialist. Jackson says speaking of a specialist settling in a small town and finding numerous cases of neglected special trouble "the fact is not that the general practitioners are ignorant but that there are no general practitioners. Those calling themselves so have been practising specialism in its commonest form, i. e., the form in which the practitioner devotes his attention especially to acute inflammations—fevers and obstetrics, ignoring many very important branches of medicine." This comes, he says, from the inevitably defective medical education, arising from lack of time and means. Every successful man whether in science or art has been a specialist though not necessarily called so. Effort must be concentrated to be effective. Scattering energy weakens it. The true Specialist, however, is not a man of one idea but one with a dominant idea, carefully curbed and held in check, otherwise he becomes a crank and some one has said that the main use of a crank is to show specialists what they

may come to if they allow their specialties to master them.

Specialism is as old as History—Cambyses of Persia 525 B. C., sent to King Amasis of Egypt for an oculist to serve his mother. Herodotus says “The medical practice is divided among physicians as follows: each physician is for one kind of sickness and no more, and all places are crowded with physicians, for there are physicians for the eyes, for the head, for the teeth, for the stomach, and for intestinal diseases.” It is said this came about because all sons had to take up the occupation of their fathers; hence physicians increased so as to compel partitioning off the fields for them to occupy. “In the celebrated Medical School of Alexandria and among Arab and Saracen physicians in the first six hundred years of our era we find mention of special practitioners—surgeons, Lithotomists—oculists and midwives (Seguin). The Priests of Esculapius took an oath, part of which was. “I will never cut for stone but will leave this operation to those of that occupation.”

The first mention I find of Specialists in this country is in the Medical Annals of Baltimore, June, 1805, as follows: “Medical & Chirurgical Faculty of Maryland meet. They endorse vaccination and offer to grant licenses to oculists if found competent.” In 1884 the specialists were first recognized at a General Medical Congress (Copenhagen). Among early specialists are worthy of mention Laennec in physical diagnosis, Bright and Rayer in renal diseases, Bayle and Esquirol in mental disease. Abercrombie and Ollivier in diseases of the brain and spinal cord, Hope and Bouillaud in heart-diseases, Cruveilhier in pathological anatomy, Hunter, Magendie and Müller in anatomy and physiology, Travers, Daviel, Tyrrell and later von Graefe in the eye.

Certain specialties have long ago established themselves and have been universally accepted. Diseases of the brain, mind and nervous system form a striking

illustration, and the establishment of special hospitals and asylums for this class of cases serves to mark the acceptance of this specialty by the Profession and the Public.

Diseases of the Eyes, one of the oldest, dating back to at least 500 B. C., probably was set aside for special care on account of the especial skill demanded in operative work. Diseases of the Ear; of the Teeth; of the Throat; of the Skin; of the Genito-urinary organs; Diseases peculiar to Women, and Obstetrics, are generally recognized as specialties. In Great Britain, Surgeons have long formed a class by themselves and this department is becoming generally acknowledged as a Specialty.

This list might probably be extended to a much greater length. I well recall how, some thirty-five years ago my old preceptor, Dr. Willard Parker of New York, himself an unconscious Specialist in Surgery, was one day declaiming against the number of new specialties and exclaimed impatiently—I expect some one will soon be making Diseases of the Umbilicus a specialty and how heartily he laughed when I reminded him that that field was already occupied by our Naval Surgeons.

Fifty years ago specialists had no warm welcome from many of the profession. Sir Morell MacKenzie writing in 1885, says, "In 1860 the very name of specialist was a bar-sinister excluding a man from the more highly coveted hospital appointments and from admission to some of the principal professional Societies. The medical press lost no chance of abusing him, his brethren sneered at him in public and slandered him in private. This treatment caused a reaction on the specialists leading them into errors of taste or judgment. It is a significant fact that the hostility to specialism not only originated with the medical profession, but has been all along confined almost entirely to them.

What are some of the objections to Specialism? It is claimed first, that the development of special practice

has a narrowing effect on the mind of the specialist—second, that it will be degrading to the profession, and third, that it will not be for the best interests of the patient—Truly a formidable indictment—if sustained.

Even as late as 1882, one of the physicians in ordinary to H. M. Queen Victoria in an address condemning specialism before the Medical Society of the University of London, said of a Gynecologist that he looked at life only as he saw it through a speculum. It is said that a London Life Insurance Company had to dissolve connection successively with three examiners because one found nearly every applicant had gastric trouble, the second found heart-disease well nigh universal—and the third rejected nearly all on account of renal disease. Says Osler, "No more dangerous members of our profession exist than those born into it without any broad foundation in physiology or pathology and ignorant of the great processes of disease." The tendency to narrow comes from cultivating Specialism as an art without regard to the wider influences on which the art rests.

Prof. S. D. Gross, himself a Surgical Specialist in his later days says in 1876, "The well-informed general practitioner is the only one who can take in the whole situation and is therefore the safest one to trust."

"The specialist, who has been a general practitioner, from year to year becomes conscious that his range of work is leading him to fear that his mental activities lack room. He only who has known the broad free range of general practice can appreciate how one can be conscious of growing narrow. Conversely the specialist who has never known general practice can never feel and realize how narrow he is." (Noyes.

But is it necessary that the Specialist should be thus dangerously narrow? In my opinion it is not, provided he has a broad general education, and a habit of looking at a problem from all sides—such as is taught by general practice. I hold it to be a good rule that a man should

not specialize till he has had ten years of general practice—or five years of practice in addition to two years of service in a general hospital. Sir H. Thompson put it thus: "No man should become a Specialist until he has had a ripe experience engrafted on a most liberal education and be forty years old."

Unquestionably a broad general education, by its mental training and formation of habits of accurate thinking, is of advantage to a Specialist in any walk of life, even to the craftsman of a trade. Yet in the mechanical arts it is of comparatively little importance. Most expert watchmakers know little or nothing of the origin or treatment of the materials with which they deal, and the old proverb, "Let the shoemaker stick to his last" shows that once the community thought it better that they should not use their time in the study of these seemingly extraneous subjects. This proverb is somewhat out of favor now, and it is generally admitted that general information tends rather to improve than to lower the craftsman's ability to do his special work. In the domain of medicine there can be no question—no specialty deserves the name that does not rest on a broad foundation, and the broader the better. Says Billroth, "The Surgeon can only safely and correctly judge of the state of his patient when he is at the same time a physician. Moreover the physician must have surgical knowledge or he will make the grossest blunders." This broad foundation is more necessary for the specialist than for the General Practitioner for after he becomes an exclusive specialist his opportunities for enlarging his general knowledge are far less than before and must consist largely in reading the current Medical Journal and attending Society Meetings, while the general practitioner is adding every day by his practice to his store of knowledge; he is a life-long student in this department. The Specialist can claim no respect from the profession if he permits himself to have no in-

terest in matters outside his chosen sphere---On this point Brudenell Carter says, "The ranks of useful specialism can only be reached by the most thorough training in the entire science and it is absurd to attempt respectability in medicine by the study of an exclusive branch."

In an address before the University of Vermont, Dr. M. H. Henry, thirty years ago, thus phrases it—"I believe in the specialist who has won distinction by ripe clinical observation—a good knowledge of pathology histology and microscopy, and who after a good career in the general practice of his art, finally decides to treat only a certain class of diseases."

No man with such a broad general education as that outlined above would, as a laryngologist, try to cure by topical applications a laryngeal paralysis dependent on an aneurysmal dilation of the arch of the aorta—nor as a neurologist would he consider a case of Bright's disease as softening of the brain and yet such cases are actually on record. The greatest of oculists, Von Graefe of Berlin, excelled in anatomy, physiology, pathology, optics and mathematics. Another oculist, Von Arlt of Vienna, wrote a text-book based on a thorough knowledge of pathological anatomy. Horner, an oculist of Zurich, is a great anatomist and clinician—Sir Wm. Bowman, oculist of London, was eminent in anatomy and physiology and wrote Bowman's Encyclopedia. Critchett, Hulke and Bader, all oculists but with previous reputation as general Surgeons—Sichel—French oculist and Donders of Holland, were both brilliant anatomists.

In regard then to the first of the three objections to Specialism, that it tends to narrow the specialist—it will be seen that we admit the tendency—but that we believe it can be in great measure eliminated by a broad liberal general education, consisting in part of several years of the general practice of medicine.

With regard to the second objection that specialism is injurious to the profession, it is asserted that when

nearly every disease—every organ has its specialist their aim will be to influence and attract the public mind, to the exclusion of the general practitioner also, that this exaggerated specialism among the consultants induces a spirit of restlessness and impatience among patients in place of the loyal dependence upon the trusted family adviser.

A wit has said, "A wise man sometimes carefully worries out the precise organic condition of the patient when a very wise man would let it alone and treat constitutional symptoms," and adds, "the well-being of a patient may be endangered by the pedantic fooleries of a specialist." Dr. Howard Kelly, the noted Gynecologist of Baltimore, seems to have had in mind some thought of the objection we are considering when he said, "The severance of Gynecology from general medicine has now become so complete that it operates to the serious disadvantage of both, as well as to the detriment of many patients. There is noticeable at times a slight mutual distrust between the two branches of the profession; the medical man complains that the gynecologist is too often ready to operate without sufficient indication, and that the results of his handiwork are sometimes disastrous, while the gynecologist feels equally sure that his colleague frequently detains patients under observation for protracted periods when the existence of some gross lesion demands immediate treatment. If I may take my own personal experience as a guide," says he, "both sides are at fault. The average gynecologist must have a broader knowledge of general medicine in order to appreciate correctly the relations his local problems bear to the whole and the medical man needs at some point in his training to be brought into close contact with the work of a successful gynecologist, and above all, he must learn to make pelvic examinations and must not shirk his necessary diagnostic measures, as so many unfortunately do."

A Committee of the American Medical Association appointed to report on the advantages and disadvantages of Specialism in 1866, reported in part as follows: "Exclusive attention to one branch secures minuteness of observation, and familiarity with minutiae, renders quick to see what is worthy of note, and enables to ascertain accurately the comparative values of different phenomena; also in a certain sense gives wideness of observation from the large number of cases seen; from these elements come skill in diagnosis and multiplicity of invention—especially of instruments—and superior skill in their manipulation—the more operations, the greater skill, especially in operations requiring delicacy of touch and accuracy of movement." The same report mentioned the disadvantages of the narrowing tendency and the tendency to magnify unduly the diseases covered by the specialty.

"There can be no question," says Bulkeley, "but that specialists have aided greatly in the advancement of science and practice of medicine by concentration of thought and experience in special directions and by collecting and utilizing large numbers of cases for the instruction of those engaged in medical study and practice. The several branches into which medicine is divided are so extensive that one is sufficient to occupy all one man's time and the highest type of specialist is one who after thorough training as a general practitioner takes up his chosen branch. Men try to be specialists too quickly.

In classifying diseases Specialism has advanced medicine also in discovering obscure conditions of disease and refining diagnosis, developing new lines of thought and practice and advancing new methods of treatment, for the general practitioner may profit thereby if he will. All the discoveries and advancements made by specialists are freely given to the general practitioner. The specialist neither patents nor conceals his

knowledge—Speaking from personal experience I may say that nothing gives him greater pleasure than to find that the general practitioner is taking an especial interest in the class of cases to which he devotes himself. It is to him a great relief to find that the family physician has sufficient interest in, and knowledge of his branch, to assure him that he may safely confide the patient to the family physician to be treated or at least watched intelligently in the interval between the visits to the specialist's office—an interval which is, by force of circumstances, often so long that serious harm might result in the absence of such care at home.

“Specialism, pursued by men of general and sufficient cultivation in the Science of Medicine, who have had a clinical experience sufficiently large to give them acquaintance with the morbid processes in the body and enable them to distinguish between these and trace them to their probable pathological sources, must rarely fail” (says Foree) “to be productive of good both to the profession and to the public, for the very forcible reason that one field assiduously cultivated by a wise laborer yields more abundantly than a number of fields imperfectly tilled.”

A story is told of a farmer who, when asked about a candidate for President, whom he personally knew, said, “Good-fellow, smart, made good presiding Judge in our district, but come to spread him all over the United States, he'd be mighty thin.”

But enough has perhaps been said in answer to this second objection that specialism tends to injure the Profession. To abolish it would prove a serious check to the advance of medicine in general. We look largely and naturally to our special practitioners for advanced ideas, each in his own line, just as we look to special craftsmen for improvements in particular machines with which they are familiar through years of thought and study expended in that particular channel. While we

all admit that the general practitioner has in the past done much to advance particular lines of work, as McDowell in establishing ovariectomy and Marion Sims in solving the problem of curing vesico-vaginal fistula—we do not look with confidence for many such brilliant discoveries by the general practitioner in the future. The different fields of practice have been too fully developed and worked over—by specially qualified men, to admit the probability of light shining suddenly out of darkness as in the cases alluded to. Light is coming—of that we have no doubt, but, by a few rays here, a few there, from points where specially experienced and skillful men are concentrating their intellects and their efforts in solving problems which are constantly arising. Surgery, for example, having seemingly settled the methods of treating the diseases of the appendix, is now concentrating its efforts on the gall-bladder and common duct, while medicine looks to the Bacteriologists for the development of anti-toxins for the suppression of the microbes that in these days appear to be the root of all evil. It is however, to the trained specialist in both these departments that we look for the next brilliant discovery—Ovariectomy it is true, was first done by a general practitioner but it is mainly the work of specialists that has reduced the mortality from 50 per cent. to 5 per cent. and while Marion Sims the General practitioner introduced the operation for vesico-vaginal fistula, it was Marion Sims the Gynecologist, who perfected it and made it the blessing to the race that it has proven to be.

The third objection that the development of special practice will not be for the best interests of the patient must, of necessity, fall to the ground, if we have, as we think, proven that its influence on the profession is for good, strengthening the general practitioner at points where he may be weak, and if in addition, it is true as we have shown, that the most substantial ad-

vances in the Science and Art have come from those devoted to particular lines of study—if specialism helps the practitioner and elevates the Science, the patient should welcome it. And, truly, he does, perhaps even a trifle too vigorously. Said a good old fashioned family physician not long ago, “I hardly dare tell one of my patients what disease he has, lest he ask me who makes a specialty of that disease in this neighborhood.”

Since then Specialism is not in itself harmful, except in a way to the Specialist himself—and is not injurious to the profession, nor bad for the patient, it may be well to ask—what should be the relations between the Specialist and the General Practitioner?

“The General Practitioner,” says Bulkley, “gains quite as much in reputation for fair dealing with his patient as he might lose by the fees which the specialist may get from the patient, or even more. The patient will be more willing to carry out the treatment prescribed by the specialist because of more confidence in the latter in his particular case, and will make more regular visits to the family physician in consequence.”

The Specialist as a medical man has claim and right to the confidence and support of the profession at large, for he gives up treating other diseases which otherwise might have been brought to him. His real position to his medical brethren is that of consultant in difficult cases belonging to his sphere. They may call him in consultation or turn the patient over to his care, and in either case the specialist must govern himself by the rules which all medical men observe in holding consultations with each other. He must not hold himself aloof from the duties, obligations and proprieties which belong to the medical profession and should be jealous of professional honor and mindful of professional courtesy. It should be constantly borne in mind that the best interests of the patient should be the paramount consideration, and where this demands that the

patient should be transferred to the exclusive care of the specialist this should be done without a feeling on the part of the family physician that he has been robbed of his patient—but rather that he is fortunate to be able to place him where his chances of recovery will be increased. But the family physician should not be in too much haste to make such transfer—and right here appears what I believe to be the most serious disadvantage of specialism, viz., that it tends to undermine the confidence of the general practitioner in himself—to make him less self-reliant. It is a well-known fact that to find the most self-reliant men in our profession one must go to the country districts where special help in various lines is not available. Here it is that one will find men who believe in themselves—in their ability to meet any emergency—and who, whether they like it or not, are compelled by circumstances to try to justify their self confidence, men who fill Ian MacLaren's description of William McClure. "He was chest doctor and doctor for every other organ as well; he was accoucheur and surgeon, he was oculist and aurist; he was dentist and chloroformist, besides being chemist and druggist." No doubt much of the old doctor's work was crude, some of it judged by the city standards was positively bad, but back of it all was the belief in himself and his methods that goes so far towards the making of the man. The knowledge that just around the corner lives a man who knows more than you do about the particular disease you are combatting—whose services may be had if the case goes badly, may be comforting, but it does not work towards bringing out of the physician all that may be in him.

The layman is accustomed to looking for superior work from Specialists in the mechanical arts and he fails to appreciate that a man is not a machine and that his logic has left out entirely the personality of the patient and the importance of the knowledge that the family physi-

cian has, as to idiosyncrasies—habits and hereditary tendencies. "The old-fogy doctor, who knows the family tendencies of his patient, who understands his constitution," says Oliver Wendell Holmes, "will often treat him better than the famous specialist who sees him for the first time and has to guess at many things the old doctor knows from his previous experience with the same patient and the family to which he belongs."

We have already noted that the Public demands Specialists. But does not the profession also call for them? The conscientious general practitioner (says Noyes) often fears that he may not know all that the latest investigation has brought out on this or that subject—or that he does not possess the skill to use the knife or instruments of precision that others have acquired. He fears he may not be doing justice to his patient because of incompetency. No man can say that he has stored his mind with all the wisdom of recent years, that he comprehends all of science and can apply his art with the highest human skill. And as Art and Science advance, the case becomes each year more complicated, while the practitioner's opportunities for keeping abreast of the times constantly diminish with the increase of his professional business. As time advances, his disposable time for study of both his own and other men's labors become steadily less, until it is reduced to the merest fraction of the day."

In the laborious rounds of practice in the country, in the hurry and press of business, of large practice in cities, medical men strive earnestly to keep up their knowledge of how the world of medicine moves on, but too often they are the first to accuse themselves of being unable to meet the duties of their daily calling and keep abreast of modern improvement. And it will be observed that the men most ready to make this confession are the most studious, the best qualified and the most conscientious in the community.

Another demand for Specialists lies in the fact that the general practitioner is so hampered by the demands of his work that he finds, but little if any, time for the recording of his cases, and of the conclusions he derives from their study. His knowledge and his ripe experience perish with him. His life has perhaps been full of blessings to his patients and to the physicians with whom he has come in contact—but the future will owe little to him.

In many other departments the Science and the application of scientific facts are disassociated. The knowledge acquired by the Astronomer is applied by the Navigator—the theoretical chemist evolves principles which are made use of by the practical expert. But the facts and deductions of medical science must be tried at once by the medical practitioner, and the opportunity of immediate and extensive trial does not fall to the lot of the general practitioner.

The only solution of the difficulty lies in the subdivision of labor. In the economic arts, in manufactures and in other natural sciences, this principle is well-nigh universally adopted. Witness the words of the old German philologist, who called his son to his death-bed and imploring him to concentrate the efforts of his life, said. "My sole regret is that I did not confine my efforts to the study of the Dative Case."

Says Noyes, "The object sought in specialties is the attainment of more perfect skill in practice and more rapid advance in science. That a higher perfection in art is thus made possible is apparent from the great frequency with which cases of a similar kind are treated. The ear becomes sensitive to nice distinctions of sound. The eye, instantly recognizes differences of form and color, and instinctively notes features making up the picture of disease which eyes less familiar must slowly analyze and combine. Thus the order and nature of events has proved that it is wise to group disease into classes, and

useful to refer the treatment to hands which constant familiarity has rendered competent."

The general practitioner—as he rides through storm and mud over the long hills in the country to relieve the pain that Johnny has acquired from surreptitiously eating green apples—or who in the city is roused from his bed at 2 A. M., because some baby has an attack of croup, is prone to envy the specialist his work because it involves so much less exposure and hardships, and does not make such irregular demands upon his time. And, truly, what man is so wholly at the mercy of the community—what man whose time is so literally not at his own command? When the reapers in harvest time saw a figure whirling past in a cloud of dust," says McLaren, "or the family at the foot of the glen, gathered around the fire on a winter's night, heard the rattle of a horse's hoofs on the road, or the shepherds out after the sheep, traced a black speck moving across the snow to the upper glen, they knew it was the doctor and without being conscious of it, wished him God speed." And how delightful the description of the old doctor, "a tall, gaunt, loosely made man without an ounce of superfluous flesh, his face burned a dark brick color by constant exposure to the weather, red hair and beard turning gray, honest blue eyes that look you ever in the face, huge hands with wrist bones like the shank of a ham, and a voice that hurled his salutations across two fields, he suggested the moor rather than the drawing-room. But what a clever hand it was in an operation, as delicate as a woman's, and what a kindly voice it was in the humble room, where the shepherd's wife was weeping by her man's bedside. Many of his physical defects were the penalties of his work and endeared him to the Glen. The ugly scar on his eyebrow was got one night his horse slipped on the ice and laid him insensible eight miles from home. His limp marked the big snowstorm, when his horse missed the road and they rolled together in a

drift resulting in a fracture of the leg and three ribs. But these were honorable scars and for such risks of life men get the Victoria Cross in other fields. McClure got nothing for it but the secret affection of the Glen, which knew that none other had ever done one tenth as much for it as this ungainly, twisted figure and many a Drumtochy face would soften at the sight of McClure limping to his horse." Seven Hundred and fifty Dollars a year and the secret affection of the Glen was the income of this kindly masterful general practitioner—who, in view of the latter item would venture to say that he was ill rewarded? This, then, is the point I would make. Though the general practitioner's life is far more full of physical hardships and of nerve and muscle-racking irregularities than is the Specialist's, yet his life is sweetened and enriched by the establishment and maintenance of relations between himself and the families whom he serves, such as rarely, if ever, come to the special practitioner. The family doctor possesses the confidence and affection of his patients in a degree that the other seldom attains to, and who of us would say that this counts for nothing because it does not swell the bank account? Many a man who has decided to give up general practice, feels a keen sorrow, as he realizes that he has deliberately put an end to those delightful reciprocal relations. This is but one of the thorns in the Specialists supposed bed of roses. Another is the constant fight that has to be kept up against the narrowing tendency already alluded to. Another still is the comparatively monotonous character of his work. I think I may assume to speak with authority—after twenty-five years of special work—when I say that we often hunger and thirst for variety, for the ride over the hills as a substitute for the long office hours, turning from one problem to another without that mental and physical invigoration that comes from the fresh air and

change of environment that attaches to house visitation.

Do not then envy us overmuch—you that represent the back bone of the profession—the general practitioners. There are plenty of flies in our ointment, though perhaps yours may be more numerous. Do not fear that we shall ultimately drive you to the wall. The Community cannot do without you; it might get along, after a fashion, without us. But I think I may, without seeming to be egotistical say, you need us. As I have shown, you need us to develop these separate fields, which must otherwise remain uncultivated and we will place the harvests therefrom in your hands, to use as you will. You need us as consultants to help you in your difficult cases, and in these cases the Community also needs us because two heads are better than one, when one knows all about the patient and the other all about the disease. Let us then not be at variance; we are working for the same end; we belong to the same glorious profession—let us be true, courteous, professional brethren.

DISSERTATION.

MEDICAL PSYCHOLOGY.

MEDICAL PSYCHOLOGY.

RIENZI ROBINSON, M.D.,

DANIELSON.

Feeling the need of the greater study and the more practical application of the principles of psychology in the every-day work of the general practitioner of medicine, I have chosen the above subject for my theme.

We live in an age of positive demonstration and tangible entities. The student strives to find some ultimate thing that can be seen microscopically if need be, or weighed and measured, however infinitesimal the atom. We are looking for the unit of size, weight and force, with the view of demonstrating it as a veritable thing, endowed with an individuality of its own. We look forward to the time when we may even measure that something, which in lieu of a better term we call vital force; that something which thus far has baffled the most expert physicist and discounted his most elaborate calculations.

In the treatment of disease we are never able to measure accurately that which carries one patient through a critical illness and fails lamentably in another. We are never able to estimate with any degree of certainty the force of will that at times tyrannizes, as one might say, over the physiological activities of the different organs of the body, stimulating the one, and depressing the other. We have yet to study and understand better the psychological influences of mind over organic function and the power of inheritance and environment over mind itself.

Everything that bears upon the life of the individual becomes the province of the physician and needs the most careful study and training upon the part of the

student and practitioner. He must not only be grounded in the fundamental branches of medical science but he must understand the ethics and principles of physiological and pathological psychology. Here is something that cannot be expressed in mathematical formulae, yet is as essential to success as the demonstration of a chemical reaction. You have only to think a moment and questions without limit force themselves upon the waiting physician. The few I may mention only hint at the many that might be brought forward.

In a state where ten to fifteen per cent. of all marriages are afterward annulled in the divorce courts, who can measure in positive terms the amount of nervous disease growing out of this domestic infelicity? In a state where murders and suicides are as common as in the half-civilized territory of New Mexico, who can express by any mathematical terms the underlying forces that have led men and women into that insane state of mind which compels them to kill themselves or others?

In a state where degenerates are allowed to marry and reproduce themselves without limit, who can count the number of imbeciles and diseased criminals that come from such unions?

In a state where alcoholism and lust furnish our jails and prisons with ninety per cent. of their inmates, who but the physician is competent to connect the crime with some diseased condition of inheritance and early life?

In a state where our ever enlarging insane asylums are unable to cope with our ever increasing insane population, who but the physician, and the broad minded one at that, can study successfully the thousand and one psychological factors that drive to the wall these sickly waifs?

You may say that the insane criminal belongs to the criminal courts and the insane invalid to the alienist, but before the insane criminals bring up at the bar of justice or the insane invalids come into the hands of the alien-

ist they are mentally, morally and physically diseased and under the care of the family physician.

The criminal judge and the alienist come in contact with the cases, as a rule, only after they have reached an advance stage of development and the diagnosis of criminality or insanity is easily made and easily apparent to the non-professional.

The general practitioner, though not an expert in nomenclature and technical terms, takes note of them in the incipient stage, and dates the beginning of the disease far back of the alienist, back of the time when the immediate friends detect any mental twist. It is here that the family physician needs all the acumen of the expert and something more in tracing those little peculiarities, insignificant in themselves, yet leading to such dire results.

In times gone by when the doctrine of "free will" was a settled conviction, it was an easy matter to divide all men into two classes, the wills and the wonts, and to judge them accordingly. Then came a time when it was a question whether a man had any will in the matter at all; some going so far as to claim that given a certain inheritance and a certain environment, it was easy to predict the resultant. This made man a victim of two forces, inheritance and environment, over neither of which he had any control, buffeted by either; a mere automaton.

It is a well known fact that the larger half of our practice is made up of nervous troubles; not the result of germs and tangible entities, but growing out of things innumerable which cannot be weighed and measured in the laboratory. They must be studied from the empirical and speculative side, and each individual presents a problem of its own, which must be worked out along lines of general principles, specifically applied.

There is a large field for this kind of work in which the general practitioner finds himself and baffled is he who

has studied only the disease as he finds it, without going back to the causes that led up to it, treating them as part and parcel of it.

The world is full of the misfits who have so little moral and nerve stamina that they bend and break with every ill wind that blows. Many start with a mental, moral and physical twist, and always remain stunted and misshapen specimens of humanity. Others start fair, straight and promising as a young and stalwart sapling, but early environment warps them from the upright and they go through life handicapped.

Escaping the perils of early childhood, the boy and girl come to the period of puberty where they need the guiding hand of a wise parent, teacher and physician, where wise counsel makes for healthy manhood and womanhood, where unwise counsels make for ill health and wretchedness. Can you not see the need of a competent physician to reach out a helping hand to steady the nervous restlessness, to check the impulsive tendencies incident to this period of life? Again, who but the physician knows intimately anything about the nervous disorders growing out of the domestic infelicities of the married but unmated. If the happiness of the race depends upon the proper adjustment of the marital relation, then the gynecologist should indeed be well versed in psychology.

Think of the nervous disorders depending upon the demands of modern society, the demands of sharp business competition, business successes, business reverses, political ambitions and disappointments. Is it a wonder that so many drift into insomnia, hysteria, hypochondria, mania and imbecility? Think of the number that might be saved and remain useful members of society, did the physician understand as he ought the psychological relations which these sick ones bear to themselves and others.

That the regular profession does not meet the demands

of the public in this respect is evident from the fact that so many issues spring up in our midst with a following of no mean proportions.

New pathies appear almost yearly and importune our legislatures for equal recognition before the law.

The homeopathist with his infinitesimal dose and peculiar doctrine of application, has compelled us to recognize his standing. The eclectic whose basic principle is and ever has been anything to beat the regular, has come to the platform of state recognition. The osteopath with his one plank platform (good massage), is clamoring for equal rights. The Christian Scientist with his appeal to and play upon the love of the marvelous, so inherent in the human race from its early infancy; the hypnotist with his confident assertion dominating the weak and doubting, etc., etc., all demonstrate and show up different facets of life that properly belong to the science of medicine and should be regarded as so many psychological factors, for the true physician to study and incorporate into his life work.

The world is full of stumbling humanity, plodding along with shattered nerves and sickly brains, consulting physicians of this or that school or of no school, getting scant benefit from the fact that so little is understood of those underlying forces that have made them what they are.

The study of psychology hitherto has been a mass of conflicting theories and only recently getting on to a scientific basis. It has been of more importance and interest to the theologian and speculative thinker than to the physiologist and pathologist. It seems to me that the time has come for our medical colleges to take up the study with the view of so instructing our students in the practical side of it that when they go out into the world as practitioners, they may the better perform the duties of their profession.

The study of inherited temperament, of the influence

of environment, of the nerve tensions incident to growth and development, the wear and tear of business life, of social requirements, of family cares, of the wasting away and decay of old age, the study of all these and their bearing upon the health and happiness of the individual, should be as rigidly enforced in our medical colleges as anatomy and surgery.

I would not lessen the importance of the positive things in medicine, but I would emphasize the need of more study in those speculative regions whose boundaries are without limit and with possible good beyond compute.

The time has come when if we would hold our own as truly educated physicians we must not hesitate to enter any field of human need, follow any line of research that promises relief to the sick and suffering.

Where shall the student gain such knowledge if not in our medical schools? In the list of questions submitted by our examining board for State licenses to practice medicine, not one question is found bearing upon this subject. In our medical journals we find now and then an article, but there is little attempt to bring the subject before the profession as a working hypothesis. Though a large part of our medical practice is along lines requiring the keenest of psychological insight, we are sent out from our schools without even the rudimentary principles taught to us by our professors. No wonder that so many of our most promising graduates fail to secure public confidence, and with chagrin see the community drifting into the hands of the so-called charlatan, who less versed in books, is better versed in the knowledge of human nature and its weakness and willing to play upon the credulity of the public. It is as necessary to know men in their daily lives as it is to know disease and drugs. It is of little use to understand the etiology and pathology of disease without knowing something of the individual suffering from it and his relations to his sur-

roundings, past and present. The physician must be something more than a dispenser of drugs. He must carry a personal presence that shall inspire hope and confidence in his patient, allay nervous fear, buoy up the despondent and make for better things. Hence my plea for a chair in our medical colleges which shall have for its object the practical application of all these psychological factors which pertain to the human family and which have such an important bearing upon the health and happiness of the individual members of it.

REPORT
OF THE
COMMITTEE ON MATTERS
OF
PROFESSIONAL INTEREST
IN THE STATE.

REPORT OF THE COMMITTEE

ON MATTERS OF PROFESSIONAL INTEREST IN THE STATE.

CONTAGIOUS DISEASES IN CONNECTICUT.

The subject of contagious diseases in Connecticut is one of the most important with which the physician is concerned, because the greater part of it affects childhood. Who can estimate the amount of deafness, impaired vision and blindness, retarded physical and intellectual development, Bright's disease, tuberculosis, which can be traced directly to an attack of scarlet fever, diphtheria or measles?

A high state of physical and intellectual development cannot exist where these diseases prevail to any extent. Every patriotic citizen should give his assistance to every movement having as their object the limitation and lessening of these diseases. Your committee propose to deal with statistics relating to deaths from these diseases, but these deaths give no hint of the amount of ill health occurring in those patients who recover. We may have a low death-rate from scarlet fever, diphtheria and measles, when many serious sequelae occur among the survivors in suppurating ears, tuberculous lungs and inflamed kidneys.

Your committee in studying this subject propose to discuss the following questions:

First. How much contagious disease has there been in each county in Connecticut in the past ten years?

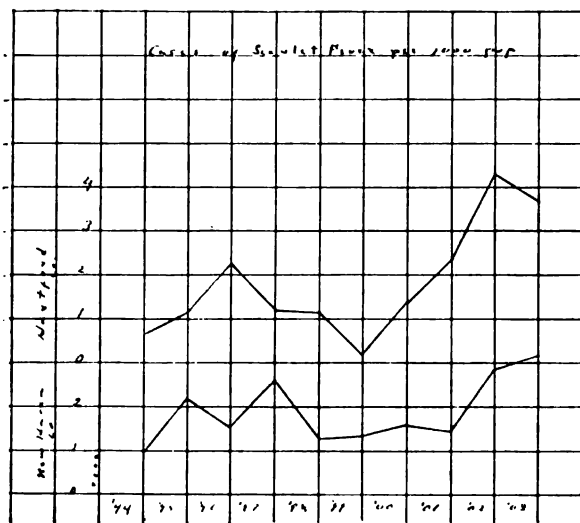
Second. Is contagious disease on the increase or decrease?

Third. What means are employed to prevent the spread of the disease?

Any investigation of this kind cannot be absolutely correct. There are many cases of contagious diseases that are never reported, such as mild cases of scarlet fever, cases of diphtheria diagnosed as tonsillitis, and cases of measles. Then again when we attempt to find the ratio of deaths to population for certain diseases we immediately meet an obstacle in the lack of accurate knowledge of the population for each county, in the years intervening between census years, and must compute the population for intervening years by methods more or less inaccurate. Not claiming then a high degree of accuracy the committee submit the following statement:

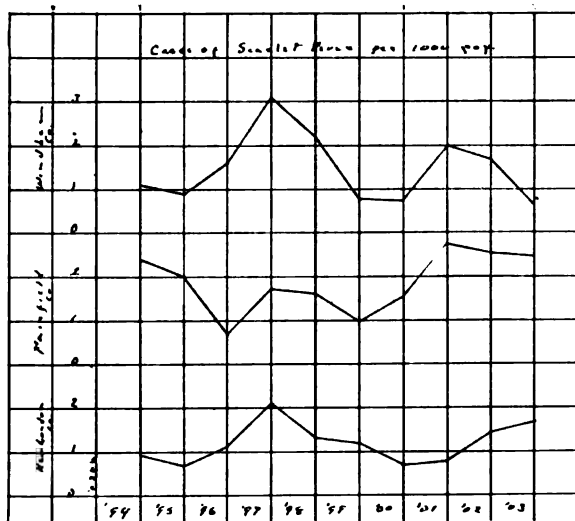
In the past ten years there have been eight hundred and thirty-seven deaths from scarlet fever in Connecticut. These have been distributed in different counties as follows:

No. 2.

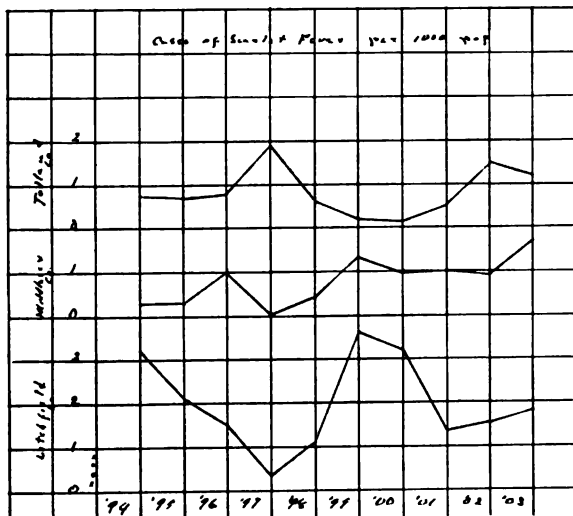


MATTERS OF PROFESSIONAL INTEREST IN THE STATE. 151

No. 3.



No. 1.

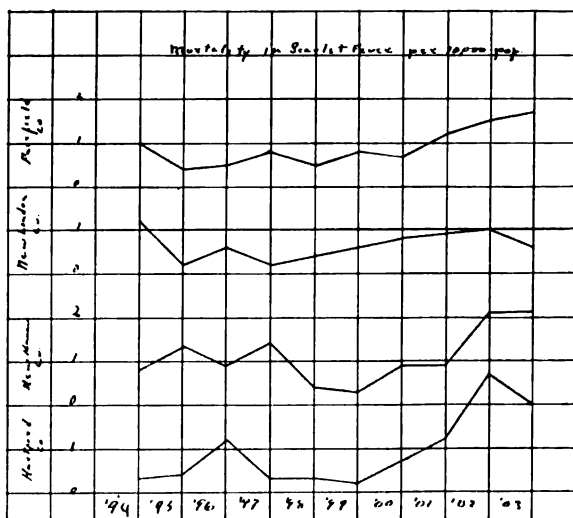


New Haven County.....	300
Hartford . “	185
Fairfield “	172
New London “	58
Litchfield “	47
Windham “	29
Middlesex “	29
Tolland “	17

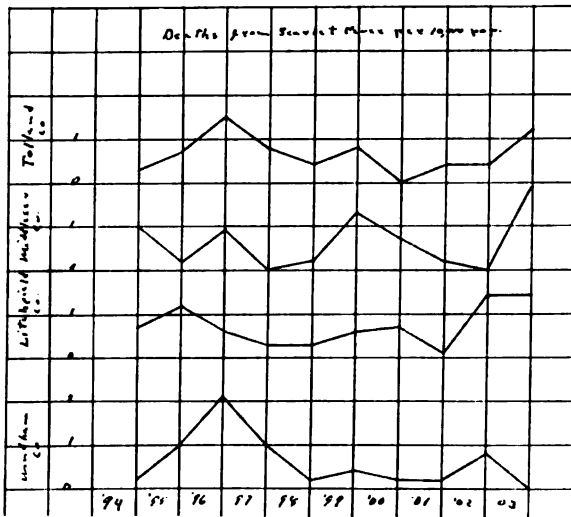
As would be expected, the most deaths occurred in New Haven County with its larger population, while the fewest deaths occurred in Tolland County.

The absolute number of deaths, however, in a County is a much less valuable index of the prevalence of the disease than the ratio of deaths to the population.

No. 4.



No. 5.



Charts 4 and 5 show the number of deaths from scarlet fever in each County for every 10,000 of population for the past ten years. Looking at these charts we see that scarlet fever has been less prevalent in New London County than in any other, the number of deaths never amounting to more than one in 10,000 of population. Fairfield County had a low death-rate up to 1900; since then there has been a gradual increase in the number of deaths. The same is true of Hartford and New Haven Counties. The death-rate in each has been markedly increasing during the past four years, until now it amounts to over two for every 10,000 population.

We have been considering the prevalence of the disease in different counties as shown by the deaths in every 10,000 of population. Let us now turn to the mortality, or fatality; that is, the number of deaths in every hundred cases of the disease reported. We are undoubtedly liable to considerable error here because many cases are not reported, and this neglect to report cases may be

more common in some counties than others, and may account for the following figures:

The number of deaths to every hundred cases of scarlet fever reported is as follows for each County:

Middlesex	8.5	deaths in 100 cases.				
Tolland	8.3	"	"	"	"	"
New Haven	6.	"	"	"	"	"
New London	5.8	"	"	"	"	"
Hartford	5.3	"	"	"	"	"
Fairfield	5.	"	"	"	"	"
Windham	4.1	"	"	"	"	"
Litchfield	3.8	"	"	"	"	"

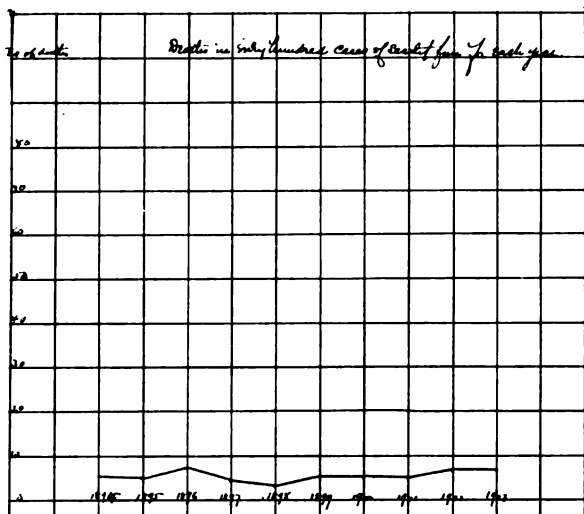
We can interpret these figures as meaning that the most fatal cases have been in Middlesex and Tolland Counties, and the mildest cases in Windham and Litchfield Counties, or as meaning that physicians in Middlesex and Tolland Counties have been particularly negligent in reporting their cases.

It is worthy of note that scarlet fever in Connecticut for the past ten years has been quite mild. Extensive statistics collected by Murchison from various sources show that in different epidemics the mortality may vary from three per cent. to nineteen and three tenths per cent. (19.3), or even higher to thirty-four per cent. The average mortality for Connecticut for the past ten years has been five and four tenths (5.4) per cent.

It is also to be noted that in Connecticut in contradistinction to most other states, scarlet fever is more fatal in rural districts than in cities. Thus the United States census for 1900 shows the mortality per hundred thousand population to be six and six tenths (6.6) in cities, to six and nine tenths (6.9) in rural districts. The reverse of this is the case in Massachusetts and New York where the mortality is much greater in the cities.

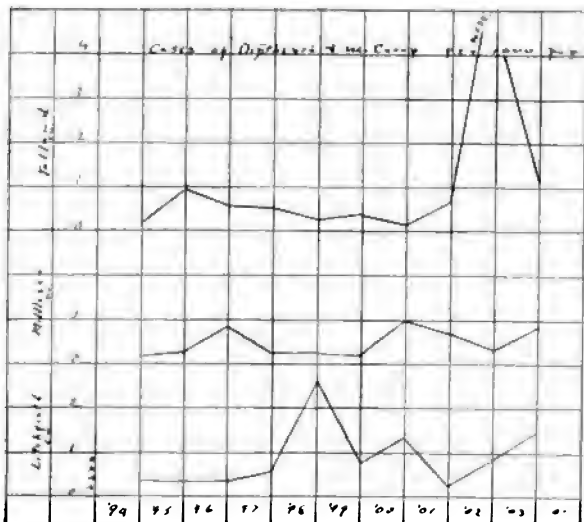
The number of deaths for every hundred cases of scarlet fever reported for the whole State for the past ten years is shown in chart six. It is interesting to note that

No. 6.



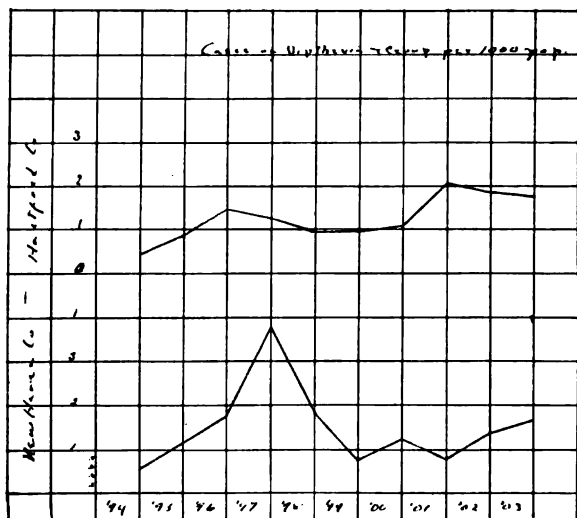
the mortality has been quite constant, varying very little from year to year, tending to show that there has been no progress or improvement in the treatment of the disease in the past ten years.

No. 8.

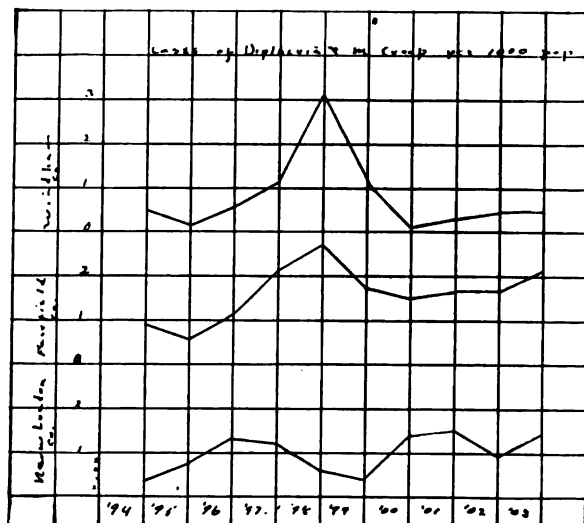


REPORT OF COMMITTEE,

No. 9.



No. 10.



How much diphtheria and membranous croup has there been in the last ten years?

The total number of deaths from diphtheria and membranous croup has been 3297. These cases have been distributed as follows:

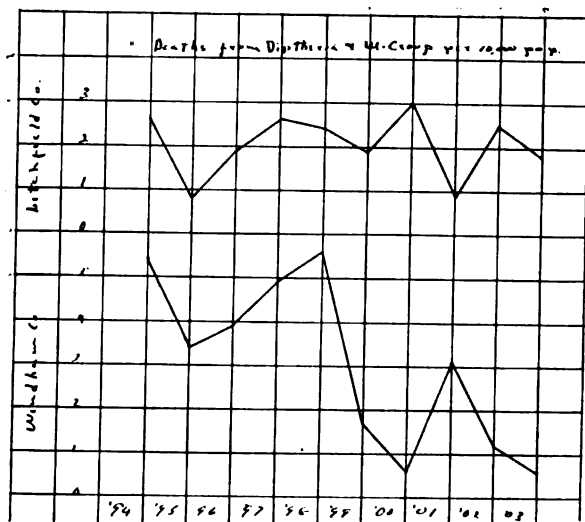
New Haven County	1,029
Hartford	805
Fairfield	782
New London	266
Windham	143
Litchfield	127
Middlesex	83
Tolland	62

In New Haven County the number of deaths from diphtheria and croup (chart thirteen) in 1896 and 1897 amounted to about eight deaths in every 10,000 population. In 1898 there was a sudden fall in mortality to three deaths in every 10,000 of population; since then the mortality has ranged between one and three per 10,000 population.

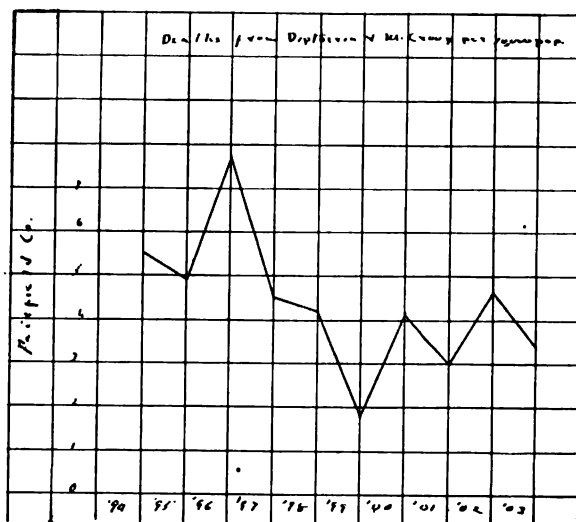
There is a somewhat similar fall in mortality in Windham County in 1899 (chart fifteen), and in Fairfield County in 1897 and 1899 (chart eleven). In some of the other counties there has been a very marked increase in mortality in the past two or three years. Thus in Tolland County in 1902 (chart twelve) there were five deaths to every 10,000 of population.

REPORT OF COMMITTEE,

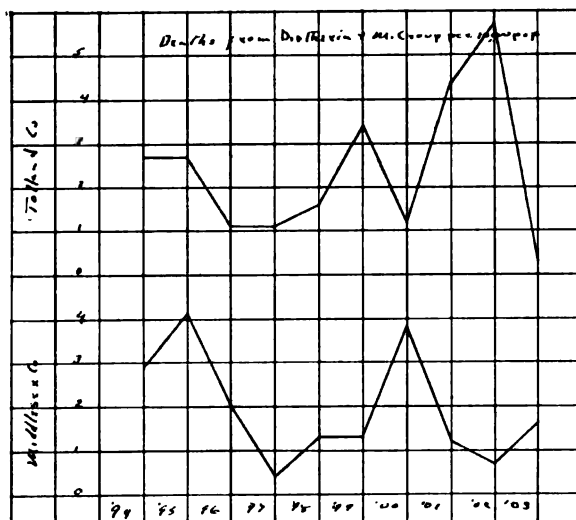
No. 15.



No. 11.



No. 12.



How fatal were these cases of diphtheria and membranous croup?

We find that the following number of deaths occurred in each County for every hundred cases reported:

Middlesex	.....	40.4	deaths in every 100 cases
Windham	.....	38.4	" " " " "
Hartford	.....	34.4	" " " " "
New London	....	31.9	" " " " "
New Haven	....	26.9	" " " " "
Fairfield	.....	26.7	" " " " "
Tolland	.....	24.7	" " " " "
Litchfield	.....	22.6	" " " " "

Here again we find the most fatal cases to be in Middlesex; no less than forty patients dying out of every hundred. Thus Middlesex mortality approaches that of the Boston City Hospital before the advent of anti-toxin, which was forty-six in every hundred. As in scarlet fever, however, this may be only an apparently high

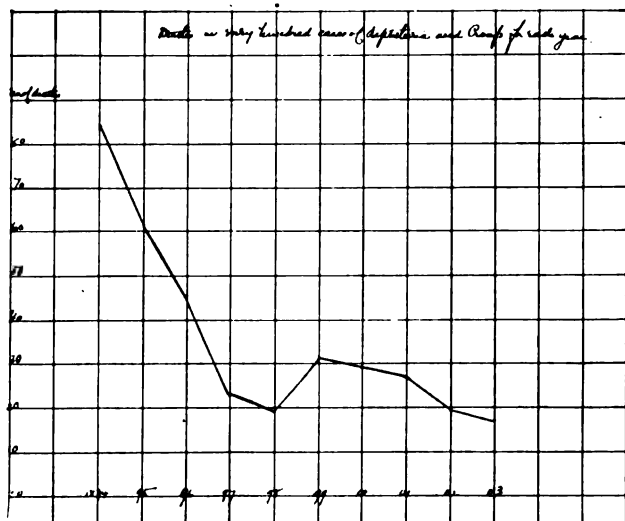
death-rate made so by neglect of the physicians of that County to report their cases.

It is noticeable that the mortality from scarlet fever and from diphtheria has been lowest in Litchfield County.

In Connecticut in the year 1900, the mortality from diphtheria and membranous croup per 100,000 of population was thirty-five and nine tenths, (35.9) and was greater in the cities than in rural districts. This death-rate was less than that of New York, New Jersey and Massachusetts, but greater than that of Rhode Island, Maine, Vermont and New Hampshire.

If we compute the number of deaths from diphtheria in every hundred cases reported for each year in Connecticut, we find that there has been a very rapid drop in mortality since 1894 (chart seven), a reduction of eighty-four in every hundred cases, to twenty to thirty.

No. 7.

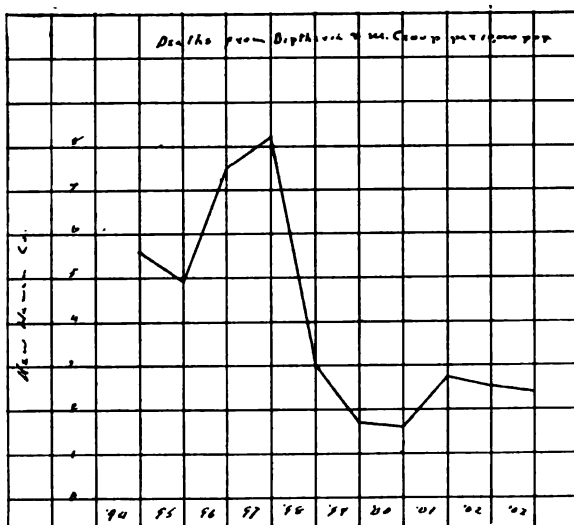


Roux read his paper on diphtheria anti-toxin in September, 1894, at the International Congress of Hygiene, but the anti-toxin did not come into general use before

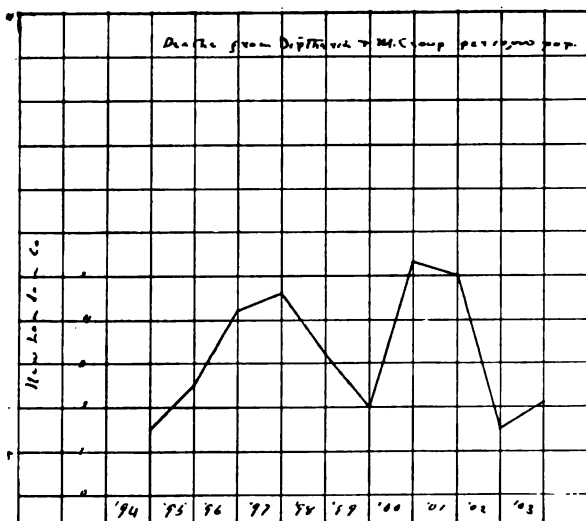
MATTERS OF PROFESSIONAL INTEREST IN THE STATE. 161

the autumn of 1895. We may, therefore, fairly attribute this marked fall in mortality to the use of anti-toxin.

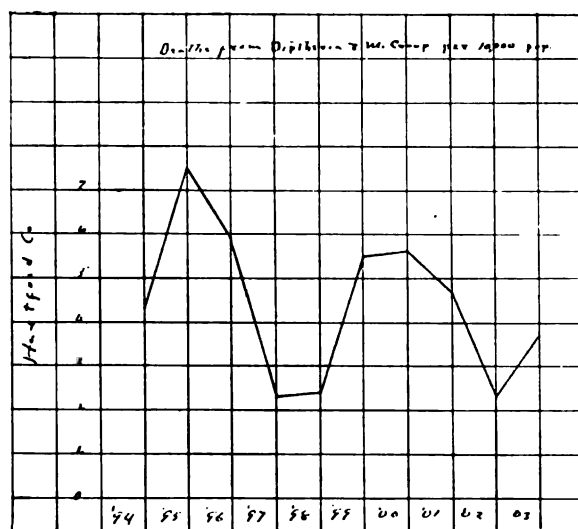
No. 13.



No. 14.



No. 16.



In comparing charts of diphtheria mortality (charts eleven, twelve, thirteen, fourteen, fifteen, sixteen) with those of scarlet fever (charts four and five), we see that the variations in mortality are much greater with diphtheria than with scarlet fever. In scarlet fever the mortality is more constant, while diphtheria is liable to sudden outbursts of severe epidemics with high mortality. There are four times as many deaths in the State from diphtheria as from scarlet fever. Diphtheria is much more fatal even with the use of anti-toxin. While three to eight cases of scarlet fever in every hundred die, seventeen in every hundred cases of diphtheria die.

The mortality for diphtheria reached its lowest point in 1903, which was about seventeen deaths in every hundred cases reported. Statistics from other cities and localities showed a mortality from thirty to fifty per cent. before the advent of anti-toxin; since then in certain places it has been reduced to twelve and nine tenths, (12.9) per cent, (that of the Boston City Hospital), which

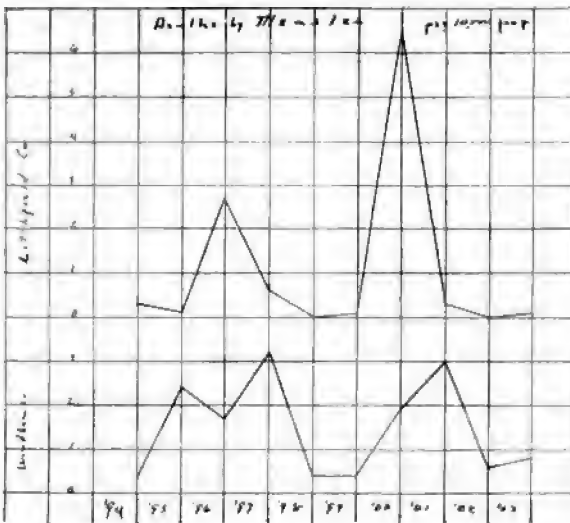
is a considerably lower death-rate than we can boast of in Connecticut.

MEASLES.—Any statistics relating to measles are unreliable.

First. Because so few cases are reported.

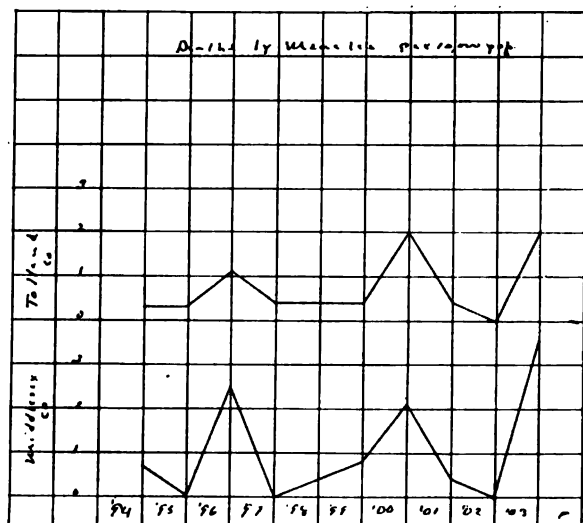
Second. Because patients rarely die of measles primarily, but of some of its complications or sequelae, and these are put down as the cause of death. Mortality statistics for pneumonia and tuberculosis in many cases mean measles as a primary cause of death.

No. 17.

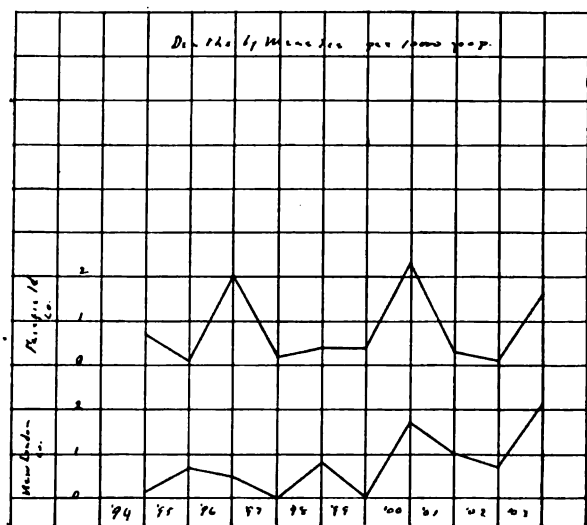


REPORT OF COMMITTEE,

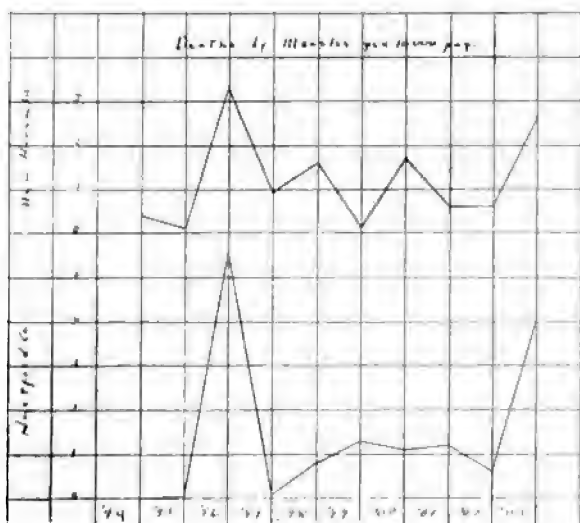
No. 18.



No. 19.



No. 20.



In spite of these inaccuracies the measles charts (charts seventeen, eighteen, nineteen, twenty) bring out some points of interest. They show that while measles is always with us, there are times when we have severe epidemics and when it is extremely fatal: (In Hartford in 1896, and in Litchfield in 1900). The mortality in these places reached five and one-half and six and one-half per 10,000 population respectively. This is a much higher mortality in every 10,000 of population than we have had from scarlet fever, and than we have had from diphtheria and membranous croup since the introduction of anti-toxin. It is interesting to note that there are certain years when measles seems to be especially prevalent in all the counties; such were the years of 1896 and 1900. This is quite different from scarlet fever and diphtheria, which may show quite a high mortality in one county, but in another one a very low one in the same year. This would seem to indicate that the infection of measles spreads more rapidly, and becomes more widely diffused than that of scarlet fever or diphtheria.

The small pox charts (charts twenty-one and twenty-two) show that most of the time the death-rate from small-pox is at the zero line in all counties. Fairfield County is the only one that has small-pox every year, though in the years 1902 and 1903 there have been epidemics in Windham, Hartford and New London Counties. In spite of its yearly prevalence in Fairfield County, it is kept well under control and there have been no severe epidemics there.

In the past ten years there have been twenty-five deaths from small-pox in Connecticut, and two hundred and forty-eight cases reported; this gives a death-rate of one and eight-tenths, which is much lower than that of any other contagious disease we have considered.

In considering the prevention of contagious diseases in Connecticut one must admit that efforts at prevention have been lamentably inefficient for the year 1903, with a total of 1,487 cases of diphtheria and membranous croup and 2,418 of scarlet fever.

We attempt to limit these diseases by keeping the patient, if a child, from the public schools, by placarding the houses where the diseases are, and in certain places cutting off the books from circulating libraries. While these methods are good they fail to get at the root of the matter.

The disease is spread by mild unrecognized walking cases, by incomplete isolation of recognized cases and by imperfect disinfection.

In examining the reports of Health Officers one sees frequently such statements as this, "Epidemic of diphtheria, primary case imported from a neighboring town," showing how frequently we find such patients not only in school, but also in public conveyances, and not only so but even up and about their work, and if perchance their work is in a dairy, we find an epidemic among the patrons of the dairy soon following, as was the case in an epidemic of scarlet fever in Norwalk in 1897.

The isolation of recognized cases is often impossible. A mother with a family of several children in caring for one child ill with scarlet fever, cannot but expose the others. Ansonia in 1895 had a case of scarlet fever of this kind in a tenement house. The disease quickly spread to other children of the same family and then spread to twelve other families, and ten deaths resulted. Finally there was a strict quarantine, and the disease was stamped out with an expense to the town of \$1,302.

In the Board of Health reports there is an account of a somewhat similar case in Groton in 1902. It is to the isolation of these recognized cases that our efforts should be directed. If this were done, there would be a great reduction in the cases of contagious disease.

Instances have been given of the frequent impossibility of isolating cases completely in the places where the patient is taken ill. As the case stands now, wherever a person is taken ill in the State, there he must stay until he gets well or dies. If in a hotel or boarding house, if in a school or college, if in a bakery or dairy, there he must stay until he recovers, for there is no other place for him. It may be that he is a great menace to the public health, it may be that his presence is ruining someone's hotel or dairy business, but he must remain there just the same. It may be that he has money and can pay for proper care, but there is no place to take him. He cannot be completely isolated and perhaps cannot secure a nurse to care for him. He will be the focus of an epidemic. But even such instances as this, which are frequent enough, do not open the eyes of the public to the fact that this great loss of life, this interference with business, may be prevented if only it will build hospitals for receiving such cases.

Agencies are constantly multiplying for the spread of infectious disease. Every new church, school, theatre, railroad, means so much greater opportunities for the spread of epidemics. There is a striking likeness of epi-

demics of disease to a great fire. A city may go for years without a large fire and then suddenly a large part of it be swept away in a single day. It would be a most reckless thing for a city to be without a fire department, though to the superficial observer the fire department would seem a useless expense. He only sees the firemen lounging idly in their houses and the horses standing useless in their stalls.

It is so with the contagious disease hospital. Much of the time it would have few patients, sometimes none, but who can tell the service it would be when we suffer, as we surely will, from epidemics of contagious disease. Then every dollar put into such a hospital will mean a life saved.

We cannot leave the subject without turning to the humanitarian side of it. We must all admit that there are no diseases that more need the watchful care of the physician and the trained nurse, than malignant cases of diphtheria and scarlet fever. We build hospitals that receive typhoid fever, tuberculosis, Bright's disease, etc., and consider them necessary in caring for such cases, but how much greater need there is that a child sick with scarlet fever or diphtheria should have hospital care. Surely no case more needs hospital treatment than the case of intubation. Such hospitals must be built centrally, easy of access for the patient and physician, well constructed with all modern conveniences, for isolating different kinds of disease, with walls and furniture easily sterilized, and with disinfecting plant. There is no greater blessing to the poor children of the city than such an institution.

Ten years ago the mortality from diphtheria in Boston was greater than that of any city in this country, and much greater than that of London, Paris, Berlin, Glasgow. That city recognizing its unenviable reputation laid plans for a large hospital for contagious diseases.

Nothing was spared to make its equipment complete. It was felt that patients with diphtheria and scarlet fever required the best care and treatment, and that only hospitals of the best construction were good enough for such cases.

Since that time, partly no doubt due to a liberal use of anti-toxin, and also to a greater degree to the presence of the hospital, the mortality has been reduced so that in 1899 Boston had a death-rate lower than most other large cities, and from having the highest mortality from these diseases it was among those cities that had the lowest. Now the death-rate from diphtheria in the Boston City Hospital is twelve and nine one-tenths for every hundred cases, and although most of the cases that enter the hospital are quite virulent, the percentage of deaths is five less than that for Connecticut for 1903.

Your committee has sent circulars to each County Health Officer asking for information regarding the hospitals for contagious diseases in their County. They have received no reply from either the Hartford or New London County Health Officers. But from the others they learn that there are no hospitals that receive scarlet fever or diphtheria in Litchfield, Windham, Tolland and Middlesex Counties. These counties have a total population of 176,816, in which there have been reported the past year two hundred and forty-four cases of scarlet fever, and one hundred and seventy-eight of diphtheria. Is it not time that some means were found in these counties to isolate such cases in a more perfect manner than can be done in tenements, boarding houses, hotels, etc.?

The cities which have hospitals for caring for scarlet fever and diphtheria cases are Bridgeport, Greenwich, Waterbury, Norwich and Hartford. New Haven has a building used for small-pox cases, but it is so far from all medical assistance, so impregnated with small-pox contagion, and so lacking in all proper facilities for caring for scarlet fever and diphtheria that we may truth-

fully say that New Haven has no hospital for receiving such cases.

In those cities where there are such hospitals, it is to be regretted that they are not used more frequently. The Health Officers of such places should see to it that all patients that cannot be isolated should be removed to such hospitals. There should be attractive wards and good service, so that patients who can pay will take the private rooms.

Finally, disinfection of bedding, clothing, etc., is not sufficiently thorough. This is frequently shown by the return of the disease in other members of the family some months after the recovery of one of their number. Isolation is not sufficiently prolonged, and the patient is allowed to mingle with others before the infection is dead. These instances would be much less common if these cases were cared for in an isolation hospital.

The financial loss to the State from contagious diseases cannot be intelligently discussed. We cannot place a money value on the life of a child, neither can we represent the loss in money that results from contagious diseases in the impaired hearing and eyesight and in the retarded physical and intellectual development of children.

But before closing we want to suggest how much the education of healthy children is retarded by the presence of contagious disease. Many healthy children are kept from school because of a case of contagious disease in another family in the tenement where they live.

A superintendent of schools has said that nearly ten per cent. of the pupils of our schools are absent either because they are ill, or because someone in the same tenement is ill. One child ill with scarlet fever in a tenement often keeps five to ten healthy children from school for a period of from three to six weeks. As a result the public pays for the schooling of one hundred children, while only ninety of them receive it, and the other ten

are put back from three to six weeks in their studies. Every year we hear of schools and churches being closed because of epidemics of scarlet fever and diphtheria, as in Bethel in 1900, and in Waterbury in 1901. In East Windsor in 1900 there were so many children ill with measles that the schools were almost deserted.

The Public Library in Ansonia in 1897 was closed for two weeks on account of the spread of diphtheria in that place. These instances show what an expense, danger and hindrance contagious diseases are to our educational system.

In closing your committee suggest that there should be a much more careful isolation of cases of measles than there is. We have shown how great the mortality is at times in Connecticut from this disease, yet it is easily recognized in its early stages, and if patients were isolated, many epidemics would be prevented and many lives saved.

The committee are indebted to Mr. C. G. Hilliard of the Yale Medical School for valuable assistance in making the charts and arranging the statistics.

The following papers have been referred to the committee, and I was asked to move that these papers be referred to the Committee on Publication without reading.

1. The first is double, tubo-ovariotomy, cystic, by Dr. Donaldson of Fairfield.
8. Cancer of Esophagus; embolic gangrene of left foot, J. W. Wright.
3. Albumenaria of Pregnancy, Dr. Lauder.
4. Benign Papilloma of bladder, J. W. Wright.
5. Diabetes Mellitus, Fibromata, J. W. Wright.

C. J. FOOTE,
F. A. MORRELL,
L. B. ALMY.

THE PHYSICIAN AS A CARRIER OF THE CONTAGION OF SCARLET FEVER. A COLLECTIVE INVESTIGATION.

J. E. LOVELAND, M.D.,

MIDDLETOWN.

The prophylaxis of Scarlet Fever is an important item of Public Hygiene. That part of the prophylaxis which relates to the physician as a possible carrier of contagion is of importance for several reasons.

First, because the attending physician of a case of Scarlet Fever is the only thing that is neither quarantined in, nor quarantined out of, the infected house. The physician can pass the quarantine sentry unchallenged many times; he may pass it every day for weeks and several times each day if he chooses. So that the quarantine, the chief means of preventing the spread of a contagious disease, is inoperative as far as the attending physician is concerned.

This subject is of importance also in view of the facts that Scarlet Fever is a very common disease, always on the rampage; in that it is a very easily communicated disease, ranking perhaps first in this respect since it cannot be vaccinated against.

The subject is important in that Scarlet Fever is a disease of far-reaching and disastrous complications and sequelae, to say nothing of the occasional malignant epidemics.

It is important in view of the relation that Scarlet Fever bears to obstetrics and surgery; in view of the great amount of trouble and anxiety that accrues to the conscientious physician in carrying out the prophylaxis; in view of the financial loss many times to the physician

who, perhaps while attending a destitute Scarlet Fever patient, must leave wealthy patients in the hands of a fellow practitioner.

There is a Charybdis as well as a Scylla to this subject. The physician who summarily glances at his Scarlet Fever patient and trusts to his nurse to even take the pulse must go away wondering whether or not in his zeal to avoid contaminating other children, he has neglected to give the Scarlet Fever patient the careful examination that it ought to have.

It occurred to the writer that the collected and classified opinion of a number of practitioners on the subject of the physician as a carrier of the contagion of Scarlet Fever would probably be interesting and might be suggestive. He planned therefore, to attempt to collect and classify the opinion and experience on this subject of a number of Connecticut men and to ask the Central Medical Association to accept the collected data as his contribution for the year.

In preparing a circular of questions to be sent out, I had in mind to ascertain first, how often the contagion had been carried by the physician under old methods of disinfection of the physician's person, or rather, lack of disinfection, when the country doctor simply allowed the wind to blow through his whiskers before he let himself loose among other children. And second: To find out how often the contagion is carried when modern methods of quarantine, disinfection of patient and apartment, and disinfection of physician are carried out. And third: To bring to light the different methods of disinfection of the physician's person in use at present and thus by comparison to be able to select the most effective and at the same time least burdensome methods that can be used to avoid carrying the disease. And fourth: To bring out some suggestions as to whether or not it is safe to attend Scarlet Fever and do obstetrical and surgical work at the same time, and if under any conditions it shall be deemed safe, then, under what conditions.

A word at this point is in place on the subject of collective investigations in general, i.e., statistics collected by sending lists of questions to large numbers of individuals. This has been a custom of the Connecticut State Medical Society for some years past. I have nothing to say in favor of the custom in general, but I make the claim for this investigation, if it be worthy of the name, that it must necessarily be the one way in which this subject can be gotten at if it is investigated at all. Such subjects as rheumatism and infant feeding, concerning which the committees of the State Society have sent out questions, are probably best studied in hospital wards, but we can only learn from the physician himself, if we can learn at all, how often he has been a carrier of the contagion of Scarlet Fever.

My plan was to canvas Connecticut. I sent a few circulars out of the state. Of the Connecticut men, I wanted to get at only those practitioners who had had large experience and who were accurate observers. I therefore first wrote to several men whom I knew personally or by reputation, who lived in the different Connecticut cities, one in each, and enclosed to these men lists of the names of all the regular practitioners in their vicinity. I asked these men to whom I wrote to check off on the enclosed lists the names of all men who were forty years of age or over, who had large general practices and who were accurate observers.

To these men referred to above, selected for me from all parts of the state, from cities, towns and villages, I sent the following questions, introducing them with a brief description of the nature of my investigation.

Question 1. Can you recall an instance where you were reasonably sure that you carried the contagion of Scarlet Fever from one individual to another, (in pediatrics, obstetrics or surgery) ?

Ques. 2. Do you know of an instance where a physician carried the contagion ?

Ques. 3. Or of an instance where any third party in health carried the contagion ?

Ques. 4. Do you believe that it can be carried on the clothes or person ?

Ques. 5. Give an estimate of the number of cases of Scarlet Fever you have attended.

Ques. 6. Please describe the measures that you employ to avoid carrying the contagion.

Ques. 7. Do you attend Scarlet Fever and do obstetrical work at the same time ?

Ques. 8. Do you recall an instance where you were reasonably sure that you carried the contagion or infection of any disease and if so, what disease ?

I added that the names would not be published.

I also sent the questions to thirty-one specialists in Pediatrics in Boston, New York, Philadelphia, Baltimore and Washington, sending to these men chiefly in order to obtain, if I could their ideas on modern methods of precaution against carrying the disease.

To general practitioners I sent two hundred circulars, one hundred and forty-two of these to men in cities, and fifty-eight to country towns.

REPLIES.

Of the thirty-one specialists, sixteen sent back answers.

Of the circulars sent to general practitioners, one hundred and six were returned. Of these three were labeled deceased. Two returned blanks saying they were eye specialists. One other said he had no records and therefore could be of no assistance to me. One other said he was out of date and out of practice. Thus we have ninety-nine lists of answered questions. Thus fifty per cent. of the specialists and fifty per cent. of the general practitioners sent back answers. Of the general practitioners, about forty per cent. of the city men sent back

answers and of the country practitioners about fifty-eight per cent.

I find that I was comparatively successful in getting back answers. Dr. E. K. Root of Hartford, informs me that his committee of the State Society sent out six hundred and fifty lists of questions on Rheumatism and got back one hundred and fifteen replies. This, he thinks, is the average success. I think that it is remarkable that I received as many replies as I did, for my questions were almost impertinent, and at least seemed to be an intrusion upon the individual methods of the person addressed. As regards the conclusions to be drawn from a comparatively small amount of data, it seems to me that the amount of experience and opinion herein recorded from selected observers, must have some significance and at least indicate which way the wind blows.

In the first question of the circular is embodied mainly that with which our investigation has to do. It reads:

"Can you recall an instance where you were reasonably sure that you carried the contagion of Scarlet Fever from one individual to another, (in pediatrics, obstetrics or surgery)?"

Perhaps we may best approach the subject of question one, by taking up questions 4, 3, and 2 in the order now named.

Question 4 reads: Do you believe that it (the contagion of Scarlet Fever) can be carried on the clothes or person? As the number of replies is about one hundred, I can use all my figures as percentages.

Seventy-seven per cent. answered yes; nine others favored the affirmative view, but modified their answers as follows:

No. 1. "Only during period of desquamation."

No. 2. "By a person in close and constant contact with the patient."

No. 3. "Think it possible."

No. 4. "Think it possible."

No. 5. "Not with proper precautions."

No. 6. "Only under very exceptional and inexcusable conditions."

No. 7. "I have always thought that it could be."

No. 8. "I think under favorable circumstances it is possible."

No. 9. "I am inclined to think it possible, perhaps more from being taught so."

No. 10.—Gives an instance for his answer.

No. 11. "Yes, on general principles."

No. 12. "Yes, when the person has been with the patient a great deal or carries away some article the patient has worn or used."

Ten others express doubt as follows:

No. 1. "Taught and led to believe it."

No. 2. "I can hardly believe so, but not so confident as to neglect precautions."

No. 3. "I was taught so and follow the theory, but honestly doubt it."

No. 4. "I have my doubts."

No. 5. "Theoretically it must be believed, but my experience has not demonstrated it."

No. 6. "Only as I have been taught and read in textbooks."

No. 7. "I doubt very much if it can under ordinary circumstances."

No. 8. "No, if clothing is exposed to air."

No. 9. "Have considered it exceptional if true."

No. 10. "Somewhat doubtful, i.e., if one was ordinarily neat and careful, of course, clothing worn by diseased ones could transmit it."

One says, "No, only by hands and instruments." I ought to add that this lonely man lives in a large city.

If we add the twelve who favor the affirmative, to the seventy-seven yeas we have about 89 per cent. who believe the contagion can be carried in the clothes or person. So here is a fact that will surprise many of us, i.e., that there are left eleven per cent. of such men who doubt that Scarlet Fever can be carried on the clothes or person.

Now in regard to the specialists, ten answer yes, and two others emphasize their yes thus:

1. "Why certainly it can, proofs abundant."
2. "There is very conclusive affirmative evidence to be found in medical literature."

One other modifies his answer thus: "If the contact be thorough and prolonged and if no subsequent means of disinfection are taken, Yes."

Three others are in doubt and answer thus:

1. "A well-known specialist says 'possibly.'"
2. "It may be possible but such instances must be rare."
3. "Have never proven to my satisfaction."

Thus we have nearly twelve and one-half per cent. of these specialists who have some doubts.

Questions 2 and 3 brought back more or less unsatisfactory answers and failed to compare in interest and importance with the answers to question 1.

We will discuss briefly the answers to questions 3 and 2.

Question 3. Do you know of an instance where any third party in health carried the contagion of Scarlet Fever?

Of the 116 men, forty-seven answered no,

Twenty-seven answered yes,

Three omitted to answer this question,

Seven omitted to answer this question, but had answered yes to one and two.

Thirteen answered no, but had answered yes to one and two.

Two answered, "am not positive" but they answered yes to questions one and two,

Sixteen answered "not sure,"

One speaks of an instance where he believes a cat carried it.

Now if we add to the yeses the seven who omitted to answer this question, having answered yes to questions 1 and 2; also the thirteen who answered no but had answered yes to 1 and 2; also the two who were not positive as to question 3 but who answered yes to questions 1 and 2, we have forty-nine answered as having known of the disease being carried by some third party.

I will now give a few of the instances given on the yes papers. I quote the words on the papers.

(a). "One of my patients, an obstetrical case, three days after delivery had a well-marked Scarlet Fever. Her child also took the fever. This obstetrical case was visited by a lady friend who had a child sick with Scarlet Fever at the time of her visit. The visit was about one week before her confinement.

(b). "Two weeks ago I saw an undoubted case where contagion was carried by a healthy party several miles in the open air to a child, every other source of contagion safely excluded.

(c). A nurse came direct from Scarlet Fever to obstetrical case.

(d). A patient in New Haven having two children, aged 4 and 1 years had a sister in Chicago whose children had Scarlet Fever. Their mother (in New Haven) went on to assist. Before her arrival there the child died; after burial she returned to her daughter's house here. The eighth day after, the child four years old was taken with Scarlet Fever. The mother cared for both children, but the baby did not contract the disease.

This case illustrates the part that immunity and susceptibility play. The mother could bring the disease from Chicago to one child but did not give it to the other in going from room to room in her home.

(e). I have a case of Scarlet Fever now where the father works in a bank beside a young man in whose family a case of Scarlet Fever occurred and I cannot find any other plausible way to account for my case except the contact of the young man and the father and then to the child. The child had not been out of the house except once for three weeks before coming down and while this is rather far fetched I see no other possible way.

(f). "A boot-black living in a house with a Scarlet-Fever child gave it to two students whose shoes he blacked."

(g). "I recall an instance where a mother visited in a family where there were children sick with Scarlet Fever and then carried the disease to her own children."

(h). "I attended a case of a child who contracted the disease from clothes which had been worn by another child who died from this disease. The clothes were hung in a closet and my patient opened the door of the closet a few moments. She died from the disease."

(i). "I know of Scarlet Fever being carried in a physician's family by a friend who attended a funeral in a family where death was due to Scarlet Fever. I also know of a child that came down with Scarlet Fever after mail arrived from an infected house."

(j). "I had a case develop in a boy of four years in which I afterward was informed that the child's nurse in coming to this family had left a child in the desquamating stage of Scarlet Fever."

(k). "Miss C. took care of two children of Mr. A, in Albany, N. Y., and went after three weeks to her sister in B, N. Y., fifty miles from Albany. In a little more

than a week her sister's children came down with Scarlet Fever. No other cases in the town."

(l). "Several instances where it was carried from isolation ward to children's ward. Individual who carried it unknown. Probably house physician, chain of evidence lacks some points, but I feel sure the contagion can be carried by a third person."

(m). "I once had a patient ill with it in summer. During one visit I found a neighbor's cat on the bed which, frightened, jumped out of the open window. A few days after the little daughter of the possessor of the cat was stricken."

The above quotations give us an idea as to how opinions are formed. The range is wide between mere probability and certainty.

In answer to question 2 which reads:

"Do you know of an instance where a physician carried the contagion?"

Sixty-two replied no.

Ten gave the names and addresses of those whom they thought had carried the disease. I wrote to the seven of these who were alive, and received an affirmative answer in two cases and a negative one in two cases.

Three replied yes, but gave no addresses. The remaining fifteen gave such answers as

"Heard of several," three

"Know of one instance," one.

"Know of several," two.

"Told by a doctor," two.

"Guesswork," one.

"Reasonably certain," one.

"Heard of an instance," four.

"Not positively, but feel quite certain that two or three cases have occurred in X since I have been here

where the infection was carried by the physician to obstetrical cases."

The vagueness and brevity of many of these answers render them unsatisfactory. They are indeed merely hearsay evidence. We will now turn to question 1, whose answers are first hand evidence. The answers to question one appealed to the writer as data of real significance, and to call attention to their import is his only excuse for presenting this paper.

In framing question 1, I endeavored to make it as suggestive as possible in order to call to the mind of the person addressed any experience that he might have had. Most of the other questions were added to stimulate the memory on the subject of question one, rather than for any other purpose. Having once obtained a report of a case where a physician had carried the contagion, I intended by further correspondence to obtain full data.

Question 1 reads: "Can you recall an instance where you were reasonably sure you carried the contagion of Scarlet Fever from one individual to another in pediatrics, obstetrics or surgery? Please add any notes that you may have or give the circumstances as remembered.

The Answers: One hundred replied no or never, and of these eight added emphatically that they were sure they had not carried it. One answered "no, but may have."

Three did not answer the question.

Twelve answered yes, and gave the circumstances or some explanation.

One other gave the circumstances of a case where he thought he may have carried the contagion.

Thus over ten per cent. of the men replying to the questions report themselves as reasonably sure that they have carried the contagion to one case. Our next step is for us to examine each of these twelve affirmative replies. I will give them verbatim.

Answer No. 1.

"Yes, only in one case. I attended one child and felt of the child's skin and went immediately to see another. When I had left the latter house I remembered to my horror that I had used the same forefinger in touching the first child and in the mouth of child No. 2. Case No. 1 was in the third week. Case No. 2 came down in ten days and there was no other evident means of contagion."

"The above is the only case I am sure of. I think I washed my hands but did not disinfect them. Dr. B, of this city had a confinement case while caring for Scarlet Fever and nurse and child and mother were infected."

I sent a circular to Dr. B, and he returned it marked "no."

Answer No. 2.

"A few years ago I was called to attend a case of confinement and on my way was stopped to see a child that was ailing. The child had Scarlet Fever two days. I continued on and delivered the woman. Two days afterward she developed the disease and died. I wrote to No. 2 for a more complete description of infected case. His answer was as follows: "The case I mentioned was undoubtedly one of Scarlet Fever. The rash was uniform and completely covered the body. The throat was not ulcerated, but somewhat swollen. The temperature rose to 105. She was delirious for twenty-four hours before death. The child showed no signs of the disease during the six days following its birth when it was taken away by relatives and did not again come under my notice."

Answer No. 3.

"Yes, in pediatrics, while attending a case of Scarlet Fever in an adult, I was a little careless in thoroughly cleansing my hands and immediately went from this case and examined a gum abscess in a boy about five years old. The next day the boy whom I examined was taken down with Scarlet Fever. There was no Scarlet Fever

anywhere in his neighborhood. The adult case resided one or two miles away from the child."

Answer No. 4.

"Only one when I brought it home to the children in my son's family. They were living in my house. The cases I was attending were mild, and not visiting them during the stage of desquamation. I relied on fresh air for disinfection, as I had to ride some distance before reaching home.

Answer No. 5.

"A single one, this case was my own child, A. I was attending a malignant case of Mr. B's, (his only son) brought from H. The family insisted on my being with the case night and day, and I had the child in my arms, was about the bed and in the room much of the time. Returned to my family and was met by little girl three and two-third years of age before I reached the house. She was taken in my arms, kissed and carried into the house. She had the disease in due time in malignant form, but lived about four weeks and died from a slough in the throat." In a letter he adds that "there were no other cases in town besides these in the two families."

Answer No. 6.

"Yes, in ordinary medical practice I brought it home to my little girl. I am reasonably sure that her disease was due to no exposure other than mine."

Answer No. 7.

This practitioner answers "no," but evidently means yes as he goes on to say. "About 1862 I carried it home to a daughter five years old, case mild but in a few days diphtheria came on. Living in good health to-day, but throat not entirely sound."

Answer No. 8.

"Yes. I visited a house where a six-year-old girl was fatally ill with Scarlet Fever. I entered the door and

advanced to the middle of the kitchen and merely looked upon the patient who lay sick in an adjoining bedroom. I went directly home and carried the disease to my own children. Then at another time while attending cases of Scarlet Fever I think I carried the disease to two children in one family which I examined for life insurance."

Answer No. 9.

"One case several years ago through a fever thermometer which I had neglected to wash."

Answer No. 10.

"Years ago I carried infection of Scarlet Fever to young daughter. She had no perceptible eruption, but desquamation of feet and hands. "In a letter the doctor tells me that the case from which he carried the disease had sore throat and discharge from ear, but no desquamation."

Answer No. 11.

"I can recall one case in obstetrics about twenty years ago, where I am positive I carried the contagion from a Scarlet Fever patient. The patient died on the fifth day. "In a letter the doctor says the case of Scarlet Fever I referred to was perhaps twenty years ago. I was in attendance for several days. Patient was an adult; it terminated fatally, before desquamation had perceptibly appeared. It was a hard case with a good deal of nose and throat trouble. I was called directly from the case to see a woman in her first confinement, who had been sick a few hours. I first went home and changed my clothes, and washed face and hands in carbolic solution. The obstetric case was normal in every respect. I was detained about two hours; saw her next day, and she was quite well. On the third day chill and fever set in, temperature 105. She died on the sixth day after delivery, and I attributed the death due to my attendance on the Scarlet Fever patient. I could in no other way account for it." In a second letter the doctor said: "The case of

obstetrics had not Scarlet Fever nor any symptoms of it. It was purely a case of Septicemia and she died of septic peritonitis and I attributed it to my connection with the Scarlet Fever case."

Answer No. 12.

"I remember one case several years ago where I had good reason to suspect that I carried Scarlet Fever to a child that I was attending with some other disease."

We will rule out case 11 since the answer gives septic peritonitis as the infection and not Scarlet Fever, and we will leave out case 12 since the answer is worded "good reason to suspect."

We have left ten cases of reported infection.

We ought now to look at these ten reports from two standpoints. Are they reasonably sure cases of infection by the physician and do they constitute all the cases that should be reported? First, as to their reliability. It seems to the writer that the cases are reasonably sure cases of infection by the physician.

1. Because the reporters are selected observers.

2. For the reason that in case a physician suspects that he has infected a case, he is quite likely at the time to look carefully for other possible sources of infection and, although in these answers the details of investigation for other sources of infection are omitted, yet it is fair to assume that it was more or less thorough and that such details would be forgotten while the result of the investigation would remain impressed on the mind of the physician.

As to whether or not many cases of infection have been overlooked at the time or withheld from my investigation; it seems probable that many practitioners would hesitate to put in writing such an experience to send off to a stranger. As a matter of fact, five of the ten cases of infection were reported to me by intimate

friends in the county. Some of the ten were infection brought home to the physician's family.

Conclusions drawn from answers to question 1.

If we can be permitted to draw a generalization from these answers it must be this. That at least nine per cent. of the men of large experience with Scarlet Fever in the last five decades, have infected one healthy individual with Scarlet Fever. This is a small percentage when the whole number of cases attended is considered, but admittedly far too large when we note that four of the ten cases were due to thoughtless errors and in no instances were modern methods of precaution used. The writer should add here that he has not come upon one instance reported on the circulars nor found in quite a search through the literature,—he has not read or heard of a single instance of the disease being carried by the physician where thorough precautions were taken as to the patient and his surroundings, and as to the physician.

Doubtless such instances occur, but we can claim as another generalization from the answers to question 1, that they are rare compared with the number of instances occurring under old methods of precaution.

Question 5 reads.

Give an estimate of the number of cases of Scarlet Fever you have attended. The answers to this question are necessarily such rough guesses that any estimate of the whole number of cases attended must be a mere rough guess.

I will give the answers to question 5, on the ten papers reporting cases of infection.

No. 1. "Twenty."

No. 2. "Two hundred."

No. 3. "Five hundred."

No. 4. "An unusual number formerly, of late years half a dozen."

No. 5. "About one thousand."

No. 6. "Two hundred."

No. 7. "Perhaps one hundred."

No. 8. "Some forty."

No. 9. "Possibly one hundred."

No. 10. "I cannot say."

Of the seven giving some figures the aggregate is 2,160 : an average of 320.

The aggregate of sixty-six papers that give some figure is 13,213, an average of two hundred. This rate for one hundred men would give an aggregate of 20,000 cases.

The rate of infection thus would be one in two thousand cases.

Question 6.

Please describe the measures that you employ to avoid carrying the contagion.

It is a difficult matter to classify the answers to this question and naturally so because every physician has his own method of taking what he calls precautions. However, I found that I could in a rough way divide the answers into three classes.

We will consider the answers of the general practitioner first. Into the first division I put those men who frankly admit that they take no precautions and those who take such measures as washing their hands and riding in the open air, and going to visit contagious diseases last.

Into the second class I put those who take such measures as wearing an old overcoat in the sick room or changing their clothes and disinfecting hands on leaving the house.

Into the third class I put those who speak of wearing a robe in the sick room.

These are arbitrary divisions I admit, and I believe that many men of the first class will use their measures

more effectively than can be said of the robed class.

I find forty-two per cent. in the first class of little or no precautions; twenty-two per cent. in the middle class and twenty-five per cent in the robed class.

To put the subject more concretely before you I will read a few answers from each class.

First Class.

No. 1. "Make short visits, do not examine pulse or temperature, stand at a short distance from bed and judge of the case by breathing, moist tongue, thirst, pain in deglutition and facial expression and amount and color of urine voided."

No. 2. "None. I want to know how many doctors do employ such means and what they do honestly do."

No. 3. "Visit contagious cases last and wash hands and change outside coat for office coat when I come home."

No. 4. "Personally I am careful to make short calls on the patient, remaining in contact with the contagion as short a time as possible. Secondly, I am careful not to go immediately to houses where there are children. I quarantine the case as strictly as I consistently can."

No. 5. "I simply keep myself perfectly clean."

No. 6. "None."

No. 7. "I avoid sitting down in the room, handling the patient in any way or touching door knobs or furniture in the room, if such avoidance is possible. I touch nothing but the floor. In winter I wear an overcoat during my visit. My patient is always anointed and strict disinfection and isolation carried out. In most instances inspection of the patient and the nurse's record can be accomplished without contact and without raising any dust."

No. 8. "Have the patient thoroughly oiled until there is no desquamation."

The following illustrates my second division.

No. 1. "I wear my overcoat into the room where the patient is and make that the last call in that neighborhood so that I shall have more outside air before seeing the next patient. At the next place I lay off my coat before entering the house, fold it inside out; if I have handled the case I disinfect my hands and frequently my face."

No. 2. "In attending Scarlet Fever I put on before entering the house of the patient a rubber coat. This coat I keep rolled up in my carriage or carriage house until I am through attending the case, then I disinfect it by sprinkling it with formaldehyde and shutting it away from the air over night. When I leave the patient I disinfect my hands with bichloride solution. I keep a few drops of formaldehyde in my thermometer case while attending the case."

No. 3. "Keep my hat on in the sick room with coat (preferably one with hard surface) buttoned up. Wash hands with disinfectants. Hang outer garments in closet with formaldehyde afterwards. Keep vapor of formaldehyde in sick room and halls constantly."

No. 4. "Only in stage of desquamation I use sheet or other covering procured at house of patient and wash hands if I have touched the patient."

No. 5. "Wash hands, face, hair and beard and spectacles in carbolic. Usually wear gown and leave in house. Otherwise drive freely in open air before going to another house."

No. 6. "Avoid immediate contact as much as possible. Wear an outer coat in sick room. Avoid coming in contact with another child as long after seeing a case as possible. Wash hands before leaving the infected house."

No. 7. "I have worn a butcher's gown or mackintosh and cap which have been fumigated with the house and afterwards returned. Also wash hands and face in

bichloride solution and use bichloride gargle. If I have not the gown do not take off my outer clothes and thoroughly air them before going to another patient. Always make these calls last on my list where possible."

The following quotations illustrate what I have designated the gowned class.

No. 1. "I wear a long gown over my clothing while in the room and wash on leaving the room. Any day that I am doing obstetrical or surgical work, I do not, as a rule, visit Scarlet Fever patients until the former work is finished and I have twelve or eighteen hours ventilation and cleansing before making a second visit on the former case."

No. 2. "First, by the free use of antiseptics in treating the patient. H² O² spray to throat and frequent inunctions with carbolized oil. Second, by free use of disinfectants (phenol and sublimate) in the room including everything the room contains. Third, I never sit down in the room, touch nothing unless it is necessary, wear a disinfected gown and when I leave wash in an antiseptic solution."

No. 3. "Wearing a linen duster and skull cap in the sick room, leaving them outside the door in a linen cover, scrubbing my hands thoroughly with brush, soap and water and washing face and mustache after leaving and riding as far as possible through the air before visiting in another house with children."

No. 4. "Wear long coat and cap in room. Touch patient as little as possible, wash hands, first, freely with soap and water, second, in carbolic solution."

No. 5. Wears Dr. Hawes antiseptic suit.

No. 6. "Wear in the sick room a long linen duster and during desquamation rubbers both of which I leave just outside the sick room. Wash my hands, hair and beard in sol. bichloride one—two thousand."

I have yet to speak of the answers of the specialists

on this subject and will give them in closing the paper with an attempt to define the best measures to be used to avoid carrying the contagion.

First we will look at the answers to question 7 which reads:

Do you attend Scarlet Fever and do obstetric work at the same time? Of the general practitioners, fifty-eight answered yes.

Nineteen answered no.

Sixteen gave various replies such as:

No. 1. "Sometimes."

No. 2. "I have done so." 3, "very rarely." 4, "not intentionally."

No. 5. "Not when it can be avoided."

No. 6. "Seldom."

No. 7. "If I have to."

No. 8. "Only two or three times."

No. 9. "Obstetrics, yes."

No. 10. "Best not, or at least use great care."

No. 11. "Not if malignant."

No. 12. "Formerly did."

A few paragraphs above in tabulating the precautions used for personal disinfection, we divided the answers into three divisions. I have thought it interesting to compute for these divisions the percentage of those doing obstetrical work while attending Scarlet Fever.

Of the class using little or no precaution seventy-one per cent. answer yes to question 7 and seven per cent. answer no.

Of the middle class, those using considerable precaution, fifty-four per cent. answer yes to question 7 and twenty-seven per cent answer no.

Of the gowned class, forty per cent. answer yes and thirty-two no. So that we find that the men who use

the least precaution as regards measures to avoid carrying the disease are most inclined to attend Scarlet Fever and do obstetrical and surgical work at the same time; and conversely, the men who employ the most complicated methods to avoid carrying the disease are the least inclined to attend Scarlet Fever and do obstetrical work at the same time.

We now ought to attempt to describe the precautions that a physician should take to avoid carrying the contagion of Scarlet Fever. To do this exhaustively we ought to be able to answer the following questions.

1. What is the specific organism of Scarlet Fever?
2. In what way does it leave the body of its hosts?
3. How long does it live in the body of the host? and,
4. What is its natural history after leaving the body of the host?

These questions are all sub-judice and we must content ourselves with a condensed statement as to what has been done along this line during the last few years.

During the last year considerable work has been reported on the subject of the specific organism of Scarlet Fever, notably in America by Hekteen and Weaver of Chicago, and Mallory of Boston. Boston people have lately set about, it seems, to ascribe all disease to a protozoan entity. For no sooner had Councilman found, as he claimed, a protozoon in the skin of Small Pox patients than Mallory proceeded to find another one in the skin of Scarlet Fever patients. This looks as if the protozoan idea, at least, was contagious. Perhaps they have hit upon something,—certainly they have set the world of pathologists to work doing control investigations along this line. In support of Mallory's suggestion it can be said that the year's work of other men has weakened the theory of a *Streptococcus* being the specific organism of Scarlet Fever. Hekteen found

streptococci in the blood of twelve cases of Scarlet Fever of one hundred examined, and concludes thus:

That streptococci occasionally may be found in the blood of cases of Scarlet Fever that run a short mild, clinical uncomplicated course: That streptococci occur with relatively greater frequency in the more severe and protracted cases of Scarlet Fever in which there also may develop local complications and clinical signs of general infection, such as joint inflammations. And finally, that streptococcemia may not be demonstrable in fatal cases of Scarlet Fever. The theory that Scarlet Fever is a streptococcus disease does not seem to receive any direct support from this work. He also calls attention to other investigations where streptococci were found in large percentage in the blood in fatal cases of Diphtheria, Small Pox and Measles, tending to show that the streptococcus is no more likely to be the specific cause of Scarlet Fever than it is of the other diseases.

Weaver reports that he finds the same bacterial flora upon the skin and in the throat in cases of Scarlet Fever as those found in health and that no one organism is constant except the streptococcus in the throat where in almost all cases it was found in enormous numbers. He goes on to confirm what others have stated that this streptococcus does not differ culturally and morphologically from the streptococcus obtained from other sources.

In regard to agglutinating reactions Baginsky, Weaver and Ruedinger could find no bacterilytic action of serum from Scarlet Fever patients although one observer, Moset, states that his serum agglutinates streptococci from Scarlet Fever cases in a very different manner from other streptococci.

All this would indicate that the streptococcus so often found in the bodies of those dying from Scarlet Fever, is only the common streptococcus. Not being able to answer the first question as to the specific organism of the disease, we are naturally incapacitated to answer

the other questions above propounded. However, it is sometimes perfectly possible to find the woodpile if you cannot find the "nigger" in it. And some recent investigations tend to show that the infection of Scarlet Fever lives in human debris other than epithelial scales. It is a popular belief and the belief is commonly accepted among general practitioners, that the virus or the specific organism of Scarlet Fever exists in, or on the exfoliated cells or scales from the skin.

Many have believed that this was the only means of conveying the disease. I shall speak of some observations lately made which go to show that the disease is conveyed by other vehicles and that possibly the epithelial scale is less often a vehicle of the virus than can be said of other detritus from the body.

Aaser of Christiania had 3,800 cases of Scarlet Fever from 1895 to 1902, and seventy-nine of these obtained their infection from patients who had been discharged from the hospital well, and were supposed to be free from the contagion. The average length of time which these individuals had been in the hospital was nine weeks and when they went out they were carefully washed and disinfected, and the boys' heads were all shaved and scrubbed. Forty were boys, and thirty-nine girls; thus throwing out the hair as a source of infection. In thirty-eight per cent. desquamation had entirely ceased one week before discharge and in the rest from one and one half to four or five weeks before discharge.

Aaser claims that too much weight has been laid on the desquamating epithelium and asserts that in many instances children freely desquamating have failed to convey the disease to susceptible individuals. He feels sure, at least, that in his cases cited the desquamation did not convey the disease, and on careful analysis of his cases he is convinced that the main source of infection was the presence of some local affection of throat, nose or ear associated with discharge and therefore some cases

of Scarlet Fever may remain sources of infection far longer than the recognized period or long after desquamation has ceased. He concludes that the patient ought to remain isolated as long as there is any abnormal secretion, and that before discharging a patient the physician should convince himself by careful anterior and posterior rhinoscopy that the secretion had ceased. An ear discharge would be apparent.

In this connection we should mention the fact that, of late there has been much discussion in England over so called Return Cases of Scarlet Fever, the claim being made that cases of Scarlet Fever after long detention in an isolation hospital and careful inspection and disinfection on their debut from the same, were more likely to cause secondary cases on their return home than were cases that were treated at home; and further it was claimed that the secondary cases that were infected by hospital returns were apt to be malignant. So frequent were these hospital infections that the idea was seriously entertained of doing away with isolation hospitals altogether. To remedy the trouble, the idea of isolation hospitals within isolation hospitals was conceived; in other words the convalescent cases were kept in separate wards and extra attempts made to render the patients and their surroundings as clean and aseptic as possible.

The theory of return cases—at least one theory, was that any nasal, throat, ear or glandular discharge, became permeated with the organism of Scarlet Fever and that the organism remained a long time in the nasal passages or other parts as is true of the *Bacillus* of Diphtheria.

The cases subjected to home treatment were likely to live in an atmosphere of less concentrated infection and thus were not loaded up, so to speak, with the organism of the disease.

From the paragraphs immediately preceding we have

received some light on questions 2 and 3, relating to the manner in which the virus, so called, leaves the body and as to how long it lives in the body and as an answer to question 4 relating to the life history of the virus outside the body, we shall review in a few words some experiments that at least suggest what the special organism of Scarlet Fever may do in the sick room after it has been thrown off from the body of the patient. For our purpose in this paper we want to know whether or not the Scarlet Fever organism exists in the air about our patient, ready to settle upon our clothes and if this is true in any degree, then what are the limits of the zone of infection, or how near to the patient can we venture without entering the halo of disease?

Experiments of Koeniger, from the *British Medical Journal*, August sixteenth, 1902.

He washed his mouth out with an emulsion of *Bacillus prodigiosus*, an organism readily identifiable because of the red coloration of its colonies, and then spoke aloud, coughed and sneezed, etc., in a room where a number of agar plates had been set at various distances and at various levels. The possibility of *Bacillus prodigiosus* being already present in the air of the room was excluded by control experiments. The results which he obtained are very striking. In one experiment, by reading aloud for half an hour infection with *Bacillus prodigiosus* occurred up to a distance of twenty-four feet, and in another experiment infection was produced up to a distance of forty feet by sneezing and coughing.

Gordon, of London, got similar results. Thus in one experiment of reading aloud for one hour, a plate forty feet away directly in front was infected. These *Prodigiosus* experiments show how real is the possibility of airborne infection occurring in a room from dissemination of droplets of mucus from the mouth.

It is true that we are not absolutely sure that the

Scarlet Fever organism exists in the mouth of the patient. It has not been found there nor anywhere else, but much more than suspicion is being cast in these days on the secretions from mucous surfaces and the intense irritation and inflammation occurring in the pharynx at the very first and throughout an attack of Scarlet Fever renders it extremely probable that the special organism enters the system there and exists there in abundance during the course of the disease.

Gordon (in British Medical Journal, August sixteenth, 1902) goes on to say that in early cases of uncomplicated Scarlet Fever *Streptococcus pyogenes* and *Streptococcus Scarlatinae* so called by Klein are present in the pharyngeal mucus and this would suggest that much might be done to prevent rhinorrhea and otorrhea and even septicemia by efficient disinfection of the pharynx.

Gordon experimented by using different gargles and he found the most efficient disinfectants for the pharynx to be Potas-permanganate and Liquor chlori.

Two hours after using gargle of sufficiently strong solutions of either of these in cases of Scarlet Fever, he found the number of organisms in the saliva reduced by over eighty per cent. compared with the number before gargling.

Gordon suggests that such a routine in even mild cases of Scarlet Fever from the very beginning might prevent complications.

Now if we study Koeniger and Gordon's experiments together we must conclude that a continuous and careful disinfection of mouth and throat by gargles together with antiseptic inunctions to prohibit skin dissemination by scales and together with attention to nasal and oral discharges and to all excretions—we must conclude I say, that antiseptic measures in the hands of an intelligent and thorough nurse will go a long way toward preventing the attending physician from becoming infected and from

carrying away from the Scarlet Fever patient's apartment the infection of that disease.

After having summed up all we know about the Scarlet Fever organism, we must confess that we are sparring in the dark with an unknown foe. And probably for all practical purposes it would be best to treat the dust in a Scarlet Fever apartment as though it were a culture medium of the organism. The scales from the skin must eventuate into dust if left to themselves and droplets of mucus or pus expelled into the air must speedily dry and be deposited as dust or on dust. So that if we revert to our homely and coarse figure of the nigger and the wood-pile and consider the dust as the wood-pile and direct our efforts against the dust, we shall act as intelligently from the standpoint of disinfection as though the special organism of the disease had been identified.

To answer the question what precautions should be taken by the physician to avoid carrying the disease we will quote the directions of several pediatric specialists on this subject, and we will show how the replies criticise each other, and finally in the light of these suggestions and others—brought out earlier in the paper, we will endeavor to define what the most effective and least burdensome measures are that can and should be used by the general practitioner in the country and in the city.

The specialists whose suggestions I am about to give are, most of them, well known in literature as authorities on pediatrics.

No. 1. "Coat, cuffs and rings off, shirt-sleeves rolled up, improvised gown or apron (tip to neck) on before entering room. Face and hands washed with 1-2000 bichloride and scalp with (1-5000) upon coming out. A walk in the open air for at least fifteen minutes before coming home or visiting another patient. Visits so arranged if possible that Scarlet Fever cases are seen last, outer clothing changed upon returning home."

No. 2. "Absolute isolation of clothing worn in a sick room. Complete change of clothing and a bath to which I add sulphur, before going to healthy or before continuing to see other patients. Always gargle throat with bichloride solution. Never take or give anything that has been in a sick room and I keep all Scarlet Fever cases isolated at least six weeks."

No. 3. "I remain (in private practice) in the room with the patient as short a time as possible for such physical examination as may be needed. Instructions are given to the attendant in another room if possible. Before leaving the house I wash my hands in soap and water and rinse in HgCl_2 . Sometimes, but not invariably I wash my face and hair in the same solution. After leaving the house I either walk a considerable distance or if I take a car I remain on the rear platform. At some cases I wear a gown and cap; in the hospital I always wear a gown and hood."

No. 4. No. 4 gives a very unique method. "I wear a gown and hat in the room and in the bath-room of same house I generate chlorime gas by adding Muriatic acid to powdered chlorate of Potassium turning on the hot water so as to generate steam and moisture at the same time."

"This thoroughly disinfects my clothing. In the meantime, wash hands and face and thoroughly brush my clothing."

No. 5. "Always wear a gown in the sick room and often over-shoes."

No. 6. "Patient is isolated with nurse on top floor, quarantine strictly maintained. Nurse always changes clothing when going out for airing. I, myself, always put on a long gown and special cap when making my visit to the patient. Stethoscope and other instruments are left in the patient's room throughout the disease. Patient is anointed with carbolized vaseline after warm

sponge bath. Throat and nose sprayed with a thymol antiseptic solution several times daily. Upon leaving patient's room at each visit my hands, face, eye glasses and throat are carefully washed with suitable antiseptics."

No. 7. "Gowns, washing hands. Avoid touching surfaces not protected or washable. Absolute quarantine of patient from contact with children. Care of secretions and body clothing. For disinfection washing, douching with corrosive sublimate one to one thousand or one to five hundred, boiling, etc., fumigation in addition to satisfy all claims."

No. 8. "I am always careful upon leaving such a case to brush or shake my clothing in the open air. If I have on an overcoat I keep it on in the room and upon coming out I take it off and shake it well in the street, I avoid close personal contact with the patient. If he coughs or sneezes I retire from the bedside for a few moments. I always wash my hands upon leaving the room. During the period of desquamation and even before it, I have the patient rubbed freely with carbolized oil or vaseline. I am positive that there is a "room contagion" which lasts indefinitely and may develop in returning children. I believe that the spread may be controlled by attention to personal cleanliness of the patient, destroying sputum and nasal secretions and by preventing spread of the exfoliated skin."

No. 9. "Wash hands, walk in open air; gowns, hoods and galoshes may undoubtedly be added with advantage, but they must be disinfected after each time used or they are worse than useless."

Each one of the above quoted authorities speaks of one or more items in the technique of personal disinfection that the others omit although they agree in the main. Before we attempt to select from the collection of suggestions a practical and thorough method of precaution,

let us call attention to two details of technique which most all practitioners sadly neglect.

First: We neglect the lower strata of air in the Scarlet Fever sick room. If there is any dust in the room, there must be by far the larger part in the lower two feet of the room; for all dust is continually precipitating and if the carpet is left in the room as is often wrongly the case, the intention being to burn the carpet after the sickness is over, when we walk in that carpeted room we tread through a cloud of dust encircling the shoes, and trousers; even on a board floor the part of the clothing below the knee must come in contact with a more dense stratum of dust than is true of the rest of the clothing and yet we put on an overcoat and a gown to protect the upper part of the person and leave the feet and trousers legs uncovered in the most infected part of the room. The long gown must often serve to sweep dust about and to deposit it on the shoes and trousers legs. Now this is a double negligence, for the reason that the part of our dress which has stalked unprotected through the densest stratum of Scarlet Fever infection must in the next house that we enter tramp about in the lower part of room No. 2, where small children live constantly and if the visiting doctor is beloved by the children, they often welcome him by grabbing at those culprit trousers of his. Now I submit that if any part of our clothing is to be protected let it be the most exposed; let it be that part which is most likely to be infected and most likely to come in contact with the children and their strata of the living room.

The second detail that is commonly neglected is spoken of by the last quoted authority who says "gowns, hoods and galoshes may undoubtedly be added with advantage, but they must be disinfected after each time used or they are worse than useless."

This detail is neglected by a very large proportion of the men who wear coats or gowns in the sick room; and

it is a very serious mistake and if one stops to consider the matter, such a lapse in the technique appears to make the gown a ridiculous inconsistency. We refer to the custom of wearing one and the same gown, duster or coat, during the two or more weeks of the attendance on a case of Scarlet Fever and leaving the garment when not in use, hanging outside the door of the sick room without boiling or disinfecting it.

Now the garment is worn in the sick room to receive on it the air-borne dust that would otherwise deposit on the physician's clothing and if the gown is worn at each visit for two weeks say, it must receive fourteen times as much infection as a garment worn one day. Then this garment is hung against a wall and in handling the garment the greatest skill imaginable could not prevent the outer and inner surfaces of the garment from brushing the same wall-surfaces each day nor in putting on and taking off the garment could any skill in manipulation prevent the inner and outer surfaces of the garment from brushing each other and from coming in contact with the wearer's clothes. In short if there is any reason at all for wearing a gown, if there is any infection in the air in a Scarlet Fever department, then the gown, unless disinfected each day, must become infected inside and out and this gown must infect him who handles it. Thus it is easy to see that the man who follows the old custom of taking no precaution except to touch nothing in the sick room and to shake his clothes in the open air and to ride or walk in the open air and to visit no children for the next few hours—this man may in fact be less infected and less dangerous than he who fumbles the same infected robe at each visit and then runs off with the delusion that he has performed his sacred rites of robed precaution and is therefore at liberty to visit children and the child-bed.

What precautions should the attending physician adopt to avoid carrying the contagion of Scarlet Fever? To

best summarize the above suggestions we can speak of them under three heads:

1. Disinfection of the apartment.
2. Disinfection of the patient and,
3. Disinfection of the physician's person and clothes.

1. As regards the apartments, they should be kept dust free. There should be no carpets, no hangings, no table cloth, no cloth furniture. The floor and all dust receiving surfaces should be wiped with a wet mop at least twice each day and if possible within an hour previous to the doctor's arrival. Wet sheets over the doors prevent currents of air but the sheets need frequent boiling on account of frequent handling.

2. As regards the patient, the skin should be kept well anointed with vaseline. No one has shown that a weak carbolized ointment has any effect on the infectiveness of Scarlet Fever scales and a strong carbolized ointment might be absorbed by the infant skin and thus endanger the already threatened kidneys. The throat and nares should be sprayed with a solution of permanganate of potash or thymol every two hours; a gargle may be used for the throat. The patient should be instructed to cough and sneeze into bits of cloth which should immediately be submerged in some antiseptic solution.

Discharges from nose, ears or suppurating glands should be frequently removed by wiping the parts with gauze cloths moistened with an antiseptic solution; the patient's garments and bed-clothes should be changed and boiled every other day. The feces and urine should be disinfected as for Typhoid Fever.

3. As regards the disinfection of the physician; it is doubtless true that if the disinfection of patient and surroundings were religiously carried out, the physician's person and clothes would be exposed to a minimum of air-borne contagion.

In protecting one's person and clothes we shall live up

to our present day light on the subject of the nature of the specific organism of Scarlet Fever, if we aim to protect our clothes and exposed body surfaces from dust, air-borne dust. The hair, beard and most of the face should be covered by a hood with a small opening for eyes. If the hood covers nose and mouth the respired air will pass through cloth and thus be strained of dust. A long gown should be worn but not long enough to brush the floor and rubber boots should be worn or overalls with cloth feet on them, or best of all, a combination of jumper and overalls in one piece with hood attached to jumper and cloth feet to overalls. After this is removed, the hands and that part of the face which has been exposed should be washed in corrosive one to five hundred and the throat and nares sprayed with thymol or a solution of permanganate of potash or corrosive. Such precautionary measures are easily carried out in the homes of the well-to-do, but among the lower or even middle classes the well intentioned physician finds his ingenuity severely taxed. Among the latter two classes as the disinfection of the patient and apartment is seldom well done, the physician ought to pay especial attention to his own disinfection, and he here finds difficulty in disinfecting his robe each day. He may be able to get the robe boiled, but the handling and drying of the robe after boiling must be done by a member of the infected family and often there is no satisfactory place to keep the robe sterile until the next visit.

The writer has for several years followed out a method that he has not found over-burdensome and which he believes to be as thorough as our knowledge of the subject permits.

The method is practicable when one is attending a few quarantined families. It would not be practicable if one were attending many cases in many families at one time but then one would necessarily have to give his whole time to the disease and the method of disinfection could

be modified. The mode of procedure is as follows: About six outfits are kept on hand, each consisting of a cotton bag the size of a pillow-case containing a long gown and a hood with a crescent-shaped opening for the eyes; the bag also contains two small towels,—one done up in a paper. I try to make my Scarlet Fever calls last, and when I go I don a pair of rubber-boots and throw my bag into my carriage. At the infected house all I insist on having is a pail of water each visit and a pan. I select a back piazza or back yard or a room least likely to be infected as my dressing-place. On arriving at the house I call for a tea-kettle of water to fill my pan which pan I have kept for my private use during the illness. I have the pail filled from the faucet. I make up a solution of Bichloride one to five hundred in the pan and put on my robe and hood. Then I immerse the bag and one towel in the bichloride solution. On coming from the sick-room I wring out my bag and put my gown and hood therein. I wipe face with my towel wet in the antiseptic and rinse off my boots with the pail of water, and lastly I wipe hands and face with the dry towel in the paper.

I take my bag home and put it in a sterilizer for boiling. Then I attend to throat and nose. Now this method is not above reproach, but anyone who has struggled to find a satisfactory technique for disinfection of person and clothes in humble homes, will, I think, find that there is less to be said against this method than against others. I claim that what ever infected dust the gown has received will be held within the wet bag and that there is no objection to carrying it home in this way. Before entering my home, I hold my boots under a faucet that is set in the wall of the house. I feel sure that two washings must remove all precipitated dust from the boots. The boots might easily be replaced by the overalls with cloth feet, if one objected to the boots on account of their appearance in the street.

This method I find that I can carry out with very little

trouble and in a very few minutes time and in carrying it out many times I have failed to observe at least many defective links in the chain of antiseptic or disinfectant measures. It is not as good a method as can be employed in the homes of the wealthy but in the house of few rooms and few appliances and little or no intelligence it has given me a sense of security.

In closing I have only to add that we practitioners must stand empty-handed by the bed-side of many self-limiting diseases; we must acknowledge that we are without resources to abort, to limit or to modify most of the diseases of the patients whom we try to comfort by our smiles and our placebos, but not even once in twenty thousand times should we carry an ember to light a conflagration that we are powerless to contend with when once started.

THE VARIOLA EPIDEMIC IN WATERBURY.

T. J. KILMARTIN, M.D.,

· WATERBURY.

During the past four years Variola has been prevalent in many sections of this country presenting features somewhat different from former epidemics and giving rise to various assigned causes for its presence. Perhaps the most prominent feature responsible in many cases for the disease being overlooked was the mildness of its course and the low mortality following its presence. Another characteristic that caused doubt in the minds of many who had no opportunity to study the conclusive symptoms, was the absence of secondary fever in the pustular stage in a majority of the cases. In almost every city in the country where the disease appeared a difference of opinion existed oftentimes among experts as to the true nature of the malady.

The prevalence of Variola has been accounted for by the return of troops from tropical countries bearing the contagion and has also been attributed to the large population of un-vaccinated persons that has grown up in this country during the past thirty years; the latter probably a stronger factor in the continuance of the disease than anything else. Well vaccinated communities seemed to enjoy a remarkable immunity.

Small-pox assumed various forms, resembling other eruptive fevers and at times a positive diagnosis from Varicella was well nigh impossible.

The epidemic in Waterbury differed in no particulars from the course followed by the disease elsewhere either as to severity, length of eruption, absence of fever, or variety of forms presented. The first case, discovered in a young man thirty years of age, presented in all prob-

ability as typical a course, according to the accepted behavior of the disease as any encountered here. Found with an eruption in the papular stage well marked on the forehead and forearms, less prominent on the remainder of the body, the papules gave way to typical vesicles, umbilicated, in turn to pustules semi-confluent which were supplanted by crusts and followed by a long period of desquamation. The eruption was present in the mouth and throat rendering swallowing very difficult, a suppurative conjunctivitis intervened and the pustular stage was accompanied by a well marked secondary fever. The eruption was uniform throughout, convalescence marked by the appearance of several boils and a healthy growth of pits followed the departure of the crusts. The case was as typical as any ever described in a text-book and ran a course that could permit of no other diagnosis. Seven other cases, three the severest that occurred, were directly traceable to the above, each presenting features peculiar to themselves. Of the ninety-nine cases treated covering a period of five months, three were confluent, seven semi-confluent, four varioloid and the remaining eighty-five were discrete variola. There was no case quarantined in which time left any doubt as to the correctness of the diagnosis. Three cases died, two of confluent and one of discrete, the latter an infant. In all three cases death was caused by septic absorption. In every case met with there was found sooner or later a history of exposure. Ninety cases were directly traceable to two brothers who conveyed the contagion from outside and went through the disease attended by a local physician without the true nature of the malady being recognized. Fourteen cases appeared simultaneously in the block occupied by the above varying in severity from an eruption covering the entire body, accompanied by high fever and prostration, to two cases in one of which the eruption was confined to the soles of the feet and on the other not more than three or four pustules were

present at any time on the body with absolutely no subjective symptoms of the disease. The period of incubation varied from seven to twenty-one days. March four or seven days after exposure two cases were discovered in the Salvation Army Shelter. March thirtieth or twenty days after the last case had been taken from there to the isolation hospital the quarantine was removed. The next morning I found one of the inmates sitting in my front hall with all the premonitory symptoms of the disease. He was removed to the hospital and died three weeks later of confluent Variola. Four of the cases beginning from this place ran a very mild course, being modified in my opinion by a recent vaccination. I have in mind also another case vaccinated by a local physician that was one of the mildest we had to contend with. Of the ninety-nine cases seventy-five had never been vaccinated. Ten had not been vaccinated in ten years. Five had been vaccinated since the epidemic began and of the remaining nine I could secure no accurate information. A party held in an infected house, the bed on which a child lay ill with the disease, serving for a coat-rest aided materially in spreading the contagion. In two houses the parents unvaccinated, contracted the disease while the children vaccinated, in daily contact with the contagion escaped.

In all typical cases the period of invasion was four days beginning with a distinct chill, headache, and backache followed by a rise in temperature from two to six degrees. On the fourth day the eruption appeared usually on the forehead and wrists as a distinct colored spot, scarlet and termed a macule. In about two days the macules appeared on all parts of the body and were raised into papules, little pimply elevations having a hard feeling with distinct shotty movements under the finger. These papules gradually enlarge, assuming a more globular appearance filling up with fluid into a vesicle with a slight depression in the center, the umbilication which

is looked on as one diagnostic feature of the disease. The contents of the vesicles change in about four days to pus. After the appearance of the eruption the temperature falls oftentimes to normal, recurring again with the pustular stage. During this stage there is considerable difficulty in swallowing, the eyes are swollen up until closed and the face puffed out until it is impossible to distinguish the features. After about five days the pustules break and their contents dry into crusts which become very adherent, requiring several weeks before fully detached. The cases of discrete variola ran a similar course but the symptoms were not so pronounced and convalescence was more rapid. In very few cases was life jeopardized by complications of any kind. Hemorrhagic discharges from the bowels were noticed in three cases due probably to eruptions on the internal intestinal coat. Bronchitis was a common companion of the disease but did not assume a serious form. The confluent cases all presented severe forms of suppurative conjunctivitis. One young man's convalescence, was marked by the appearance of twenty-two boils on his lower extremities. One woman was pregnant throughout the disease and did not miscarry though her temperature was above 104° for several days. The confluent cases were accompanied by marked delirium during the pustular stage.

During the epidemic the disease most frequently confounded with Variola was Varicella. The prodromal symptoms are more marked as a rule in Variola, the eruption is uniform, the papules having a harder, firmer feel and oftentimes found on the palms of the hands and soles of the feet, an unusual location in Varicella. In Varicella there are a number of successive crops of papules, vesicles and crusts being seen at the same time. Umbilication is very rare in varicella, very common in variola, in the former the vesicles are unicellular and

when pricked with a needle are readily evacuated. In variola the vesicles consist of a number of cells. The eruption in varicella runs a rapid course clearing up often times in a week. In variola from four to eleven weeks are required before desquamation is completed. Pustules are rarely found in varicella and of a not very pronounced type. I have never seen a case of variola without a well-defined pustular stage. The rash of variola may assume a measly or scarlatinal form but after the first few days the disease cannot easily be confounded with measles or scarlet fever. Impetigo contagiosa bears a strong resemblance to one stage of variola. The eruption is not general, however, in impetigo and new areas of infection are constantly breaking out, the elements of the disease being carried by the finger nails. The scales are superficial, easily removed and have not the adherence of the rash of small-pox. A characteristic exceedingly repulsive odor was present in all cases.

Small-pox is a self-limiting disease and calls for symptomatic treatment only. In the initial stage the severe pain and insomnia is best controlled by morphine. Troublesome vomiting was relieved by cracked ice and small doses of hydrocyanic acid. Stimulants were needed in the majority of cases, alcohol being used, and strychnine in the severe forms of the disease. The tendency to constipation in many cases was overcome by phosphate of soda. Severe diarrheas were controlled by large doses of bismuth combined with opium.

Various ointments were used on the eruptions, unguentine affording more relief in the majority of cases than any other. The amount of pitting depends upon the severity of the eruption and attempts to modify it were of no avail. A most nourishing diet was furnished whenever well borne and all patients admitted to the open air as soon as their condition permitted which materially aided their convalescence.

MEDICAL PAPERS.

REPORT ON PROGRESS OF MEDICINE.

S. M. GARLICK, M.D.,

BRIDGEPORT.

It is quite impossible for the average practitioner to keep up with, as oftentimes it is above and beyond him to epitomize the progressive movements in medicine. The good which men do lives after them, and one must really look backward from some point of vantage to know the progress which has been made; and in our labor for progress, as indeed in our attempts for review, results oftentimes do not bear evidence of the cost. It is said that Newton wrote his chronology fifteen times before it satisfied him; and Gibbon his memoirs nine times. Humboldt sent the outlines of his *Cosmos* just sixty-six years before he forwarded its last sheets to the printer. Thus we do labor and toil in our calling and often it seems "Love's Labor Lost"; that which we advocate as a most important truth to-day may be set aside to-morrow as of but little merit.

Over fourteen hundred physicians of the "regular school" have died in the United States since our last annual meeting.

In reviewing the long list of our fellow-workers who have passed to the other side in the short space of twelve months, one is struck with sadness and can but cry with Cicero. "There are countless roads on all sides to the grave."

Among our own countrymen we mention Bartholow, whose work has made light to shine in two hemispheres by his treatise on Therapeutics and Materia Medica.

Of foreigners I would name Sir Henry Thompson, Artist, Physician, Scientist; and Samuel Smiles, Sur-

geon, Journalist and man of affairs, whose Scottish courage was helpful, not only to himself, but to thousands of young men through his books, "Self Help," "Duty," "Thrift." Of the multitude of others only less known, but no less useful and beloved in their humble spheres, we will only say of each: "The Eternal Master found his talent well employed."

PNEUMONIA.

I would emphasize the importance of the increasing prevalence of pneumonia and its startling fatality.

A. R. Reynolds,¹ shows that deaths from this disease have increased since the middle of the last century 346.6 per centum, and that in Chicago during the last three years pneumonia has caused one-eighth of all the deaths. Meanwhile the deaths from phthisis have in fifty years diminished 39.5 per centum. Since an early diagnosis is important I would refer to a paper by L. A. Connor and G. A. Dodge,² which is an interesting study of the physical signs of pneumonia. The most frequent of the early signs is a weak respiratory murmur over the affected area; next is a circumscribed impairment of resonance; next the crepitant râle and third a slight increase in the clearness and intensity of the vocal resonance. These authors believe that "central pneumonia" is not a condition beginning in the depths of the lung and discoverable only when it has progressed to the surface, but that it is really a consolidation progressing slowly to completion. My own observation leads me to concur in this opinion.

PNEUMOCOCCUS SEPTICEMIA.

Reports and personal observations demonstrate that Pneumococcus Septicemia or infection with Diplococcus pneumonia, in other than the respiratory organs, is more widespread and frequent than has been suspected until recently.

In the Bridgeport Hospital we had during the past

year a case in illustration of this point. A young man aged twenty-three years admitted November 1st, 1903, temperature 102, respiration 40, pulse 160; consolidation of both lobes of the left lung, crepitant râles, and pleuritic friction. The right shoulder was red, swollen and painful. Widal's reaction negative. On the twenty-eighth of November, the swelling was incised, and about sixteen ounces of pus obtained; a specimen being sent to the laboratory Dr. Ives, of the house-staff, made bacteriological test and culture which showed pure culture of pneumococcus; at the same time examination of the sputum showed pneumococcus and no tubercule bacillus. Acute symptoms have gradually subsided though resolution has not yet occurred and he has yet a persistent cough. February seventh the shoulder was again incised and necrotic bone curetted, and at time of writing the bone is still bare. Repeated examinations of sputum have failed to show tubercule bacilli.

G. Parker,¹ reports an autopsy, in the case of a child dying from pneumonia, which showed mediastinitis, resolving pneumonia and pericarditis, while, from various organs, cultures were made and pneumococci developed. My own observation notes a large variety of forms of disease, developing in a single family, or group of individuals, when the pneumococcus is present.

It is to be regretted that late years have developed no new or decided improvements in the treatment of acute lobar pneumonia; while the supporting treatment and careful sustenance of an embarrassed heart is to be employed the free use of alcohol is less resorted to than formerly.

Anti-pneumococci serum has awakened but little enthusiasm and the treatment by creosote carbonate, has not sustained the claims of the early advocates.

MALARIA.

Further and increasing evidence is obtained concerning the transmission of malaria by the mosquito. Mr. Luz-

zato, reports that he found malarial hemoglobinuria in several members of one family. He believes this complication due to hereditary predisposition. Man² describes a case in which there was a coincidence of malarial hemoglobinuria and uncinariasis. Considering this case to support Koch's belief that "Blackwater fever" occurs only when some other influence than malaria has already damaged the red corpuscles, his (Koch's) assertion that it, black-water fever, is only another name for quinine poisoning, seems to be as far from the truth as were his two great assertions regarding tuberculin and bovine tuberculosis. T. D. Delaney³ earnestly calls attention to the importance of the increase in the large mononuclears in the diagnosis of malaria. A percentage above twelve is, in suspicious cases, he believes, very important. Nothing else has been found yet which equals quinine in the treatment of, or as a prophylactic against malaria; in children enquinine may be used. It costs twice as much as quinine and is less than half as active, but has the advantage of being tasteless. Methylene blue, so much lauded by the Eclectics a few years ago, still holds its own as a substitute or succedaneum for quinine; or where, owing to some idiosyncrasy, the latter cannot be taken. It is probably of most value in chronic cases; on account of its diuretic action, it should be of especial value in hematuric and hemoglobinuric cases. Therapeutically, it is less certain than quinine and its effects are ordinarily more unpleasant.

TUBERCULOSIS.

The "great white plague" still commands the earnest attention of our profession, and the year in review before us has brought forth a number of important articles. It may be stated that the active and widespread work, excited by Koch's paper at the London Congress, has demonstrated that his position was untenable.

V. Behring⁴ reports that he has determined that al-

buminous bodies pass the intestinal mucous membranes of newly born animals unchanged: That tubercle bacilli pass the intestinal mucous membrane of young guinea-pigs without producing any local lesions. The first lesion noted by him was tuberculosis of the cervical glands; later there were the appearances that are commonly considered to be characteristic of inhalation-tuberculosis in guinea-pigs. Thus he is led to believe that intestinal infection may and does ultimately produce lesions which are commonly thought to be characteristic of respiratory infection, and that in the young, at least, the digestive tract is the main source of infection. Macfayden, and A. MacConkey, describe some remarkable results corroborating the above, obtained by investigations on independent lines. They examined the mesenteric glands from a series of twenty-eight cases in which there were no gross evidence of tubercular disease of the intestines. All of the subjects were children and all but two under five years of age. Virulent tubercular bacilli were present in ten, and, most striking of all, in five of those who were supposed to have been entirely free from tuberculosis (or in twenty-five per centum of the non-tuberculosis persons examined) virulent bacilli were present. One of the positive cases mentioned was a still-born child. I need not emphasize the importance of such observations. I will repeat, the wide-spread and active work excited by Koch's statements at the London Congress has sufficed to demonstrate that his statements were unjustified. The pendulum has now swung the other way and the best evidence indicates that bovine tuberculosis is of much importance, even more than was formerly supposed, and instead of now relaxing our efforts for its suppression, we should even more earnestly seek to control possible infection from cattle. The year does not seem to have developed any certain improvements in the treatment of tuberculosis. Where there is mixed infection, in which the streptococci are

abundant in the sputum, the use of anti-streptococcus serum has proved itself of benefit. Zomo-therapy (meat juice and raw meat treatment) has still its advocates and its opponents. At least, two writers advocate, with some show of reason the use by inhalation of Formalin, combined with chloroform, alcohol, creosote, or guaiacol. This method is known as the "Antiseptico-anesthetic method." The most elaborate expose of this method with which I am acquainted is presented by Ambrose T. Holly, Port au Prince, Haiti.⁵

In the present writer's opinion, the sanatorium treatment is producing the best results, at this time, and Connecticut is happily in advance, in both her public and private facilities for the treatment of the unfortunate consumptive. Through State aid added to the munificence of private individuals and with the customary enterprise and professional foresight of the Hartford physicians, the Hartford Hospital has already in operation a well equipped and suitable ward for tuberculosis patients. I understand that this is just now temporarily closed owing to the exigencies of continued support. New Haven County by similar benefactions is enabled to establish a hospital for Tuberculous patients on a farm of two hundred and fifty acres, well located on an elevated plateau and with buildings well equipped. Patients are to be admitted only after examination by a competent medical board, thus preventing the influx of unsuitable cases. Four cottages are now complete; the main building is nearly so; and it is hoped by the early autumn that everything will be in readiness for the reception of patients.

The Bridgeport Hospital is taking steps to establish suitable bungalows for the open air and sanatorium treatment. Dr. Brooks has a well equipped private institution suitably located at New Canaan. I can give testimony to the efficiency of his methods of treatment.

All writers touching upon this subject agree in assert-

ing the great necessity of an early diagnosis; without this the favorable opportunity is often lost.

Consequently several articles have appeared during the year advancing methods of early diagnosis, but the time would fail me to review them all. All patients cannot have an early diagnosis; all cannot go to a sanatorium. If consumption is to be banished, or even greatly suppressed, means must be devised to improve the dwellings of the poor, who must of necessity live huddled together in a most unsanitary manner, spreading the disease among their families and neighbors; and to provide suitable food and to advance methods of treatment that can be successfully carried out at the patient's own home.

TYPHOID FEVER.

The widespread, not to say almost universal implantation of the typhoid bacillus, which occurred as one result of the war with Spain, has been followed by innumerable local isolated cases and a few epidemics of more than local interest: Notably at Ithaca, N. Y., in which there were six hundred and eighty-one cases with fifty-one deaths, being 7.5 per centum; definite source of infection the water supply. Another in the St. Lawrence Hospital,^o thirty-nine cases, source of infection, ice supply. The most appalling visitation from typhoid which any American community has suffered was at Butler, Penn., a town of sixteen thousand inhabitants. The epidemic began early in November, 1903 and in spite of prompt action taken by the Butler Board of Health, aided by the Pennsylvania State Board, by December fifth or in one month, one thousand one hundred and eighty cases had been reported and thirty-seven deaths had occurred. At what may be considered the close of the epidemic, namely the closing of the Emergency Hospital, the twenty-fifth of February, 1904, the total number of cases had reached one thousand three hundred and sixty-four, and the number of deaths one hundred and fifteen. It should be not-

ed that some twenty of the nurses became infected, or nearly ten per centum of the number employed. Indeed in this connection it is worthy of note how frequently in ordinary Hospital work, and also in private cases the Nurse of Typhoid Fever cases becomes herself infected with the disease. In this sad and appalling visitation the water-supply was proven to have been the source of infection.

Of special interest is a serious epidemic in Chicago, where house flies are shown to have been the means of conveying infection, and one in the county jail at New Haven, which caused seven deaths out of a total of twenty-one cases. In this epidemic Dr. H. E. Smith, Yale Medical School, and Dr. Edward Mahl, of Hartford, report that from the nature of the case, transmission by flies cannot be proved, but it is rendered probable by the conditions known to have existed; an important consideration, especially when it is shown that they, the flies, convey the microbes to the objects with which they come in contact for as long as twenty-three days after feeding.

PARA-TYPHOID.

This condition known as Para-Typhoid and its relation to typhoid fever has called forth quite a number of interesting and important contributions. The Para-Typhoid bacillus is said to occupy a position intermediate between the colon and typhoid bacillus and presents some of the characteristics of each, hence by some it is called para-colon bacillus.

Its distinct individuality being proved, the writer would prefer the former name, as best indicating its clinical relations. Already, it is alleged, there are two forms known, alpha and beta, the latter being the more important. The symptoms of the para-typhoid infection are in many cases the exact counterpart of the typhoid infection, the course being milder. The onset is by chills, the recovery, when not afebrile, being ushered

in by crisis; the total duration being from twelve to eighty-four days; pulse is usually slow and irregular.

Complications are common and frequent, and certain of them, rare in typhoid, are said to have been repeatedly seen in para-typhoid. Prognosis is favorable, fatal cases being thus far less than four per centum. After having somewhat carefully reviewed the reports of the bacteriologists, and their laboratory findings, interesting as they are, and appreciating that it is through just such investigation that substantial medical progress is made, the writer is still unable to accept these cases clinically as a new disease. Our present opinion is that para-typhoid is simply mild typhoid and therefore calls for no new name.

VARIOLA.

The chief interest in connection with small-pox during the past year has been the report by Professor Councilman⁷ and others, of the Harvard Medical school, who consider that they have demonstrated definitely that the cell-inclusions found in variola are living parasites of the protozoon type; and that these pass through a two cycle life in variola, while only a one cycle life is observed in the parasite in cases of vaccina. These reports on the progress of this important study must be regarded with interest. It is a matter for pride that this work has been taken up by our countrymen, Professor Councilman and his associates, who together present the most comprehensive, thorough and intelligent work which has yet been done upon this subject, either at home or abroad, and the final results will be awaited with great expectation.

PARASITIC DISEASES.

UNICINARIASIS-AMERICANA.

My predecessor of last year discussed most interestingly the subject of Unicinariasis which still continues to interest the profession, especially that portion of it south of the Mason and Dixon Line.

This disease seems to be of a much wider distribution and more frequent occurrence than is uncinariasis duodenale, and it is made apparent that its relation to "ground itch" is exceedingly interesting.

Marked Anemia with a sallow, washed out, "muddy parchment" complexion is one of the most prevalent conditions throughout the country districts of the South.⁸ Until recently these cases were always thought to be a consequence of malaria. Harris threw doubt on this long held idea and stated that in his opinion they were due to uncinaria, and not to malaria. Warfield,⁸ having examined sixty unselected boys in an orphan school of one hundred boys, near Savannah, Ga., found that of these sixty boys, forty-eight or sixty per centum were infected with *Uncinaria Americana*. All of these were the subject of more or less anemia. Special attention was given to the question of ground itch, in all these cases; forty-five of the forty-eight gave a history of one or more attacks of ground itch. In two negative cases the patient had had the disease and in ten, they had never had it. Warfield further says. The mode of infection I believe is as follows:

"Children are not any too cleanly about their persons. Nails are long and full of dirt and the hands are carried to the mouth constantly. There is probably no skin disease in which the patient feels more like tearing his flesh than in ground itch, itching is constant, but worse at night. Children will often tear their flesh, breaking the vesicles and scratching the raw flesh. I believe that the embryos get on the fingers beneath the nails, and in that way are carried to the mouth. The habit, too, of drinking water from the hollows of the hands is an easily conceivable mode of infection. The children in such cases infect the water with their hands. Finally some are certainly infected by drinking water containing embryos that have been washed in from the soil, as is shown by the three patients, who, having eggs in the stool yet

never had had ground itch. I fully agree with Harris that the vast majority of anemias, through the South are due, not to malaria, but to uncinariasis. It is uncinariasis that is sapping the life-blood in the country districts and the sooner this is realized the better. Once we rid our communities of this vampire, this blood-sucker, a new era will dawn for the Southern country. I must not omit to mention that in one case the worms without doubt had lived in the intestine for at least thirteen years. The patient now aged twenty-two had lived in the country since she was a child. She had had at that period several attacks of ground itch."

NELAVAN.—(SLEEPING SICKNESS.)

Another parasite disease concerning which a more definite and precise knowledge has been obtained is Nela-van, the Sleeping Sickness, or Sleeping Dropsy of the Negroes of the West Coast of Africa. The Etiology of this disease has recently been worked out in the Congo District and Uganda, East Africa, and proves to be caused by the introduction into the body of a small organism through the bite of a fly, related to the Tabanidae, Gad or Horse fly. This species is known as the *Glossina palpalis* or Tsetse fly. A variety of the Tsetse known as *Glossina Morsitans* has a world-wide reputation; it was first figured and described by Bruce in 1790 in an account of his travels to discover the source of the Nile. It is said to be so dangerous that whole regions of Africa are made uninhabitable during the season when the insect abounds; while man from this species seems to enjoy immunity, to the horse or ox its bite is often fatal.

It is not so however with the allied species referred to, the *Glossina Palpalis*. It appears that about twenty-eight percentum of the natives of Congo and Uganda are infected with the parasite of this fly. As long as it is confined to the blood, nothing results except a mild form of tropical fever. When it gains entrance to the cere-

bro-spinal fluids then a true case of sleeping sickness occurs. The sleep gradually deepens into Coma, convulsions, death. The course of the disease is from two to six or eight months, and no drugs or method of treatment avails in the least.

DISEASES OF METABOLISM.

In the study of Metabolism the German is just now very active. Much is being done especially in relation to Glycosuria, Diabetes Mellitus, and Diabetes Insipidus. I find myself unable to interpret the results or draw therefrom a satisfactory conclusion and will therefore pass on with this brief allusion. R. L. Jones ^{2,3} believes there is a definite relation between exophthalmic goiter and rheumatoid Arthritis. He contributes an extensive series of observations of the reflexes, which leads him to believe there is segmental disease of the spinal cord in rheumatoid Arthritis. The Reflexes are usually increased in the diseased limbs.

Drs. L. Edsall and C. W. Miller, University of Pennsylvania, have made interesting observations in Acromegaly. They note very great retention of nitrogenous substances, with a much less pronounced retention of phosphorus and calcium, and an abnormal excretion of calcium through the urine. The authors conclude that in acromegaly the abnormalities in the bones are probably the result of metabolic disturbances, rather than a mere distorted overgrowth. Some important observations at Johns Hopkins Hospital indicate the increased frequency of gout in the United States—much more frequent indeed than it is ordinarily supposed to be, and ordinarily diagnosed as rheumatism. It is well worth the while to call attention to a series of studies on various disorders of metabolism and nutrition by Dr. Carl Von Noorden. These monographs traverse the subjects considered in a manner well nigh exhaustive and also most convincing. Published in this country by E. B. Treat & Co., New York.

DYSENTERY.

Of Intestinal Diseases Dysentery is claiming a full share of attention. It has long been recognized as an infectious disease and while perhaps positive statements are at present impossible, it seems reasonably certain that the specific organism has been isolated and made demonstrable. Studies of Shiga, Kruse, Flexner, Vedder and Dural, mentioning last but by no means least, a member of our own Society, Allen Ross Diefendorf, the labors of these men, I say appear to prove that the Shiga bacillus is found in most of the cases of dysentery where mucus and blood are present in the stool in considerable amount, and it is not necessarily present in cases which do not present this type. Besides agreeing with this conclusion, Rosenthal, of Moscow, reports a case of general Septicemia due to the bacillus of Shiga.

DERMATOLOGY,

In the Dermatological Medicine the Finsen Light, Liquid Air, X-Ray and High Frequency Current have been found increasingly useful. Especially in Nevi and Erythematous Lupus, Liquid Air is being used with exceedingly satisfactory results. We are fortunately to have a special and valuable paper on this subject read by so eminent a specialist as Dr. Bulkley. In this department of medicine Radium had not sustained the expectations at first aroused.

OPHTHALMOLOGY.

In Ophthalmology some fair photographs of the fundus oculi have been taken but they are not yet satisfactory. The use of the X Ray has been further developed in locating foreign bodies in the eye, but has not yet supplanted surgery in the treatment of Trachoma and new growths. By virtue of improved technique the giant magnet is still doing good work in removing bits of iron and steel from the eye. Ophthalmology has not yet received any benefit from Radium. Some of the new Silver salts are used with good results, and permanganate

of potassium, one to ten per cent is reported to be excellent in purulent conjunctivitis.

ELECTRICITY AND RADIATION.

The X Ray, The Finsen Light and High Frequency Electrical currents are all increasingly useful owing to better knowledge of their limitations and an improved technique in their use. The status of Radium in Therapeutics is of course not yet established, but the general impression is at present that it will not prove as useful nor will it find such a wide field of application as the X Ray has found. Radium is physically a wonderful substance, but that does not necessarily make it a wonderful therapeutic agent.

In concluding, let me say, I know how imperfectly my work has been done, and I fully appreciate that I have only reviewed a few of the many indications of practical and therapeutical advance in the year just passed. In our efforts and desires, in our hopes and disappointments, we all do feel

'Tis strange, we so toil, to fashion for our unseen ends,

The splendor that the tarnish of the earth doth mar—

Such palaces that crumble to a ruined age,

Such garbled memories upon Fame's fragile page.

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1. Journal American Medical Association.
 2. Deut. Arch f. klin. Med.
 3. Brit. Med. Jour.
 4. Berl. klin. Woch. and Deut. Med. Woch.
 5. Med. Review of Reviews, 1904.
 6. Amer. Jour. Med. Sci.
 7. Jour. Med. Research, 1903.
 8. Am. Medicine, 1904.
 9. Lancet.
 10. Univ. Penna. Med. Bull.

DISCUSSION.

Dr. C. A. Lindsley: Mr. President, I know that I do express the feeling of the whole society when I say that we have been very much entertained by the not only interesting, but very instructive reports on medicine and

surgery that we have just heard. I only wish to call attention to one point in the report on medicine.

I think it was stated by Dr. Garlick that an epidemic of typhoid fever had been traced to ice infection. My interest in the question is simply this, that Dr. Sedgewick has recently, that is, within a year or two, published a work on sanitation in which he states distinctly that there had been very few cases of typhoid fever that have been traced to, or supposed to have been traced to ice infection, and that in an investigation of them he does not find one that gives a satisfactory and conclusive evidence that that was the source of infection, although there were circumstances which made it probable. I wish to inquire of the reporter if, in the case which he alluded to, the evidence was conclusive?

Replying to Dr. Lindsley, Dr. Garlick epitomized from Hutchings and Wheeler, (*Am. Jour. Med. Sci.*, Oct. 1903,) who report an epidemic of typhoid fever occurring at the St. Lawrence State Hospital, Ogdensburg, N. Y. The water-supply was not contaminated and infection from vegetables and oysters was ruled out. During the winter of '02 and '03, there were several cases of typhoid in the City of Ogdensburg. This city discharges its sewage into the St. Lawrence River, from which the supply of ice furnished the Hospital was taken. From this ice there was obtained a block of frozen granular substance, solidly frozen in the center of blocks sixteen inches thick. Cultures in tubes were made from this sediment having rapid growth and fecal odor. From the end-plates of subsequent cultures five colonies were selected resembling typhoid bacillus and fresh cultures made from these. One of the five was proved to be a pure culture of typhoid bacillus, as shown by various tests. Furthermore the disease was identified clinically by autopsies in three cases, in all of which the intestinal and abdominal lesions were demonstrated.

THE VALUE OF CLINICAL PATHOLOGY TO THE PRACTITIONER.

A. R. DIEFENDORF, M.D.,

MIDDLETOWN.

The rapid and phenomenal progress in medicine during the past few decades has been almost wholly due to investigation in the field of pathology. As a result of this, pathology and its technique has taken a prominent part in the training of the general practitioner. Courses in pathology in the medical schools have been lengthened and strengthened, and whereas formerly these courses consisted almost wholly in demonstration, they now include practical training in the actual technique of the examination of the blood for parasites, the estimation of the number of blood-corpuscles, the isolation and identification of different bacteria, the examination of throat-cultures and purulent discharges.

These recent acquisitions in medical science have placed the older practitioners at a distinct disadvantage. Unable to acquire the requisite knowledge by reading alone, or to spend the time and money to procure a special training and the expensive instruments needed in this work, some have entirely ignored this valuable adjunct to successful practice depending upon their intuitive knowledge gained by extensive experience; while others with great enthusiasm but meager knowledge have turned to the pathologist with everything from an onychia to hemicrania, and have accepted his report as the *sine qua non*. While to some it may seem that the present day tendency in medical teaching is to produce pathological enthusiasts to the detriment of a well-rounded medical education, practical experience with recent graduates

shows that even these clinicians fail to regard and utilize their pathological training in the proper light, and with the proper spirit.

It is the object of this paper to bring these two factions into closer touch with clinical pathology, to enthuse the pathological pessimist and to subdue his counterpart, the enthusiast; and furthermore to place those who are not able to undertake pathological work themselves, in a position where they can correctly interpret the pathological report as it comes to them from the man who examines the material.

I purpose to consider briefly the diseases in which microscopical examinations are most often needed by the practitioner to aid him in his treatment, prophylaxis and prognosis. These will be divided into the diseases in which (1) bacteriological examination is necessary; (2) those in which blood-examinations are necessary; (3) those in which material from the intestinal tract is necessarily examined; (4) those in which urinary analysis is most important.

This classification is necessarily unsatisfactory as some bacteriological diseases need blood-examinations and some intestinal, and urinary disorders demand other examinations than those of the stomach contents, feces and of the urine in order to arrive at a positive conclusion.

TUBERCULOSIS.

Among the bacteriological diseases, tuberculosis with its wide distribution and high death-rate naturally demands the aid of the pathologist more often than any other disease.

In suspected pulmonary tuberculosis the sputum, whatever its quantity or character, should be examined. One sometimes finds that the most innocent looking saliva is swarming with tubercle bacilli, and on the other hand sputum suspiciously turbid, tenacious and filled with small white bodies fails to reveal the specific organism.

In collecting material for examination precaution must be observed if absolutely reliable results are to be obtained, that only a very clean receptacle be employed, the expectoration made into the bottle containing some water, preferably sterile water, and well stoppered, particularly if the specimen is to be transported some distance. In case it is desirable to determine the presence of a secondary infection, it is very necessary both that the material be collected in sterile water and examined very shortly after collection. A positive report is always positive and sufficient, but a single negative report should mean nothing. If the characteristic bacteria are absent from the early morning sputum, then specimens from other periods of the day should be examined, and finally a twenty-four hour specimen should be collected. One is justified in any suspicious case in making repeated examinations through several months if negative results are found.

Meanwhile an estimation of the number of white blood-corpuscles may give a valuable clue as to the diagnosis. Most uncomplicated tubercular affections are not accompanied by a leucocytosis. The exception to this rule is found in tuberculous meningitis, where a moderate leucocytosis occurs in over fifty per cent. of the cases. The presence of a leucocytosis, therefore, would indicate that the affection was probably not tuberculous, or if tuberculous, it existed either in the form of tuberculous meningitis or complicated with pus formation, such as pulmonary cavities or a general infection, tuberculous peritonitis or salpingitis.

In suspected tuberculosis of the urinary tract; tuberculosis of the bladder, prostate or kidney, a careful examination of the urine is most essential, the object being to determine the presence of tubercle bacilli in the sediment. To accomplish this several examinations may be necessary. Here also a positive report is always positive, care having been taken to differentiate the smegma

bacillus, but a negative report means little unless a most painstaking examination has been made, or a guinea-pig injected.

Finally, in tuberculosis of the intestinal tract, a careful search for the presence of the tubercle bacilli must be made, and a report to be positively negative must include an injection of a guinea-pig.

The serum agglutination test of Arloing for tuberculosis, which three years ago gave promise of such brilliant results, has thus far failed to give the anticipated results.

TYPHOID FEVER.

In typhoid fever the pathologist by means of the Widal Reaction, the bacteriological examination of the blood and the leucocyte count may be of great assistance to the clinician in the recognition of the disease.

The employment of the Widal test as now used is not practicable for the practitioner himself unless he has a rather extensive bacteriological outfit, so he is compelled to depend upon established private or public laboratories for its application.

A positive report on this test from a laboratory is to be relied upon as a very sure diagnostic point. The qualifications to bear in mind are that the positive reaction indicates a typhoid infection, past or present, and this infection may be a latent process existing in the gall-bladder, in the bone-marrow, or urinary bladder. The latter is a rare complication and so can be readily ruled out, while in regard to the residuals of old attacks of typhoid it may be said that the blood of such individuals usually loses its agglutinative power in two years, but cases have been reported where it has remained over twenty years.

The receipt of a negative Widal report by a practitioner necessitates the consideration of several factors. In the first place there are at least four to seven per

cent. of so-called cases of typhoid fever in which there is never a Widal reaction. These cases are considered by some investigators as being due to a bacillus allied to the typhoid bacillus and called the paratyphoid bacillus, yet to all practical purposes such cases to the clinician are genuine typhoid fever, demanding the same prophylaxis and treatment as that form of disease arising from the true typhoid bacillus.

But in ninety-three to ninety-six per cent. of cases one may expect a positive reaction within the first ten days. In only a very small per cent. of cases does a positive reaction occur for the first time after the tenth day. Some cases have been reported in which the positive reaction did not occur until during a relapse. In view of the fact that the reaction only infrequently takes place previous to the sixth day, a negative report up to this time has no value, but negative reports continuing up to the eleventh eliminate the probability of typhoid in most cases.

A method of more certain diagnostic value than the Widal reaction is the isolation of the bacillus from the peripheral circulation where it may be found as early as the second day of the disease. A sufficient number of observations has not yet been carried out to permit of a statement of its absolute value. The difficulty of technique in this method, which requires the withdrawal of at least four c. c. of blood from the vein of the arm and a considerable amount of media, renders it less valuable for general use.

Others recommend the isolation of the bacillus from the rose spots or from the feces, but either of these methods is unsuitable for general use.

The leucocyte count of the blood in suspected cases of typhoid fever is of distinct value, indeed there are few diseases excluding those recognized as diseases of the blood, per se, in which a blood-count is of more value. In contra distinction to almost all other local inflam-

matory processes, as pneumonia, appendicitis, etc., typhoid fever in ninety-seven per cent. of cases has no leucocytosis, and in about seventy per cent. a hypoleucocytosis. Thus by means of exclusion a physician receiving the report that there is no leucocytosis, can eliminate most other local inflammatory disease processes, while the existence of a hypoleucocytosis is still more positive. This observation does not apply to cases of typhoid complicated with pleurisy, pneumonia, bronchitis, abscess formation (ear, parotid gland, etc.) in all of which a leucocytosis is apt to occur.

The occurrence of leucocytosis in a case of recognized typhoid fever, or in which there has previously been no leucocytosis, should make one suspicious of hemorrhage into the intestine, or of complicated peritonitis. It is of value to know that a blood-count cannot differentiate typhoid fever from malaria and tuberculosis, two diseases with which it is frequently confounded; the same is also true of influenza and acute dysentery.

The uncertain value of the diazo-reaction of the urine in typhoid fever, which test can be most readily applied by the clinician, has become more widely recognized, so that it has now fallen into general disuse.

MALARIA.

The great prevalence of malaria in this section of the country places it prominently among the diseases in which a microscopical examination may aid in arriving at the correct diagnosis. The distinctive clinical features of malaria would seem to render unnecessary the assistance of the pathologist, yet a very large percentage of cases diagnosed as malaria, specimens of whose blood are presented for examinations, are not confirmed either by the microscopical examination or by the course of the disease.

The chief method of clinical microscopy in determining the diagnosis of malaria is by an examination of the blood for the plasmodium of malaria. A positive report

as to the presence of the organism may be regarded as practically positive. A negative report from a competent expert and on properly selected material should be just as positive. The search for the organism may be a tedious one and require more than one specimen of blood. The blood may be examined either while still fresh or in dried smears, the latter probably being the best, though both should be tried. The tendency for the plasmodia to disappear from the peripheral circulation near the time of the occurrence of the chill and particularly after the administration of quinine, makes it necessary that the blood should not be drawn from the finger or ear within twelve hours of a passed or anticipated chill, and not until considerable time has elapsed after the ingestion of quinine. If these precautions are observed and the specimen is a good one, the organism should be found every time.

The blood-count is also an important aid in the diagnosis and prognosis of malaria. The presence of anemia, a reduction in the number of red and white corpuscles and the hemoglobin, and particularly the proportionate increase of the large mononuclear leucocytes should confirm the diagnosis in suspected cases. But a blood-count is not necessary except for the purpose of determining the degree of destruction of the blood-corpuscles and in forecasting the course of the disease, unless the parasite is not readily found.

DIPHTHERIA.

In this disease the physician must depend upon the pathologist for an absolutely accurate diagnosis. The presence of a non-diphtheritic exudate upon the pharynx and tonsils is not at all uncommon. Such membranes may result from an infection with the streptococcus pyogenes and it is quite beyond the power of the clinician to distinguish the difference between it and the true or pseudo-diphtheritic membrane. It is very essential

therefore that a bacteriological examination should be made.

A positive report upon such an examination is to all practical purposes conclusive, but not absolutely unless the pathologist has taken the trouble to differentiate the pseudo from the true Klebs-Loeffler bacillus, which requires considerable labor and time. The presence of the pseudo-bacillus unassociated with the true bacillus, of course, renders quarantine and other preventive measures unnecessary. A negative report upon a throat swab depends for its value upon the character of the specimen sent for examination. Such a report cannot be regarded as absolute unless a piece of the false membrane has been secured on the swab. Much carelessness exists in the procuring of throat swabs, and for that reason less credence should be placed upon a negative report. Sometimes the characteristic bacilli are found in abundance and will regularly yield good cultures, again they are found only in the interstices of the false membrane. The diphtheritic process may involve only the nasal passages, for which reason it is essential always that both a nasal and throat swab should be sent. This procedure is of particular importance when cultures are being examined during convalescence to determine if the infective agents have entirely disappeared from the individual's throat and nose.

In recent years expert observers have failed in from three to ten per cent. of cases recognized clinically as diphtheria to find the K. L. bacillus (Bazinsky, three per cent. ; Kossell, eight per cent. ; Burrows ten per cent.) yet many such cases have been treated with antitoxin with brilliant results.

DISEASES OF THE KIDNEY, BLADDER AND PROSTATE.

In the matter of urinary analysis a pathologist is usually unable to make a diagnosis as to the disease process. So much depends upon the clinical manifestations that he is rarely justified in offering more than the patho-

logical indications. For instance the finding of blood in the urine very often means nothing more than the simple fact that blood is present and one cannot give the source of the hemorrhage. Likewise the presence of casts in the urine, particularly hyaline and granular cases permits of no other diagnosis than cylindruria, while only the practitioner from the clinical data, the quantity of urine passed, etc., may arrive at a diagnosis. Albumen as is well known may mean little or a great deal, and no one from its presence alone in the urine should attempt to determine its significance. Furthermore, the great variation of the pathological elements in the urine from day to day renders a single examination of the urine very unsatisfactory. A chronic nephritis may present a few hyaline casts in only one of four specimens, and on the other hand sugar may appear in but one of the four specimens and in either instance one would not be justified in arriving at any conclusion even as to the pathological indications after an examination of a single specimen.

Again the character of the urine varies at different periods during the day which may be an important consideration in the diagnosis of some diseases. The matter of diet, the presence of a febrile state, or cardiac disturbance, an abdominal tumor and many other conditions may be the determining factor in arriving at a diagnosis of a kidney state.

The diagnosis of the different diseases of the kidney must be made by the clinician and chiefly by exclusion, because there is no absolute standard to which an unknown specimen should conform. In other words a disease of the kidneys does not always produce a urine of a specific character.

One of the most important indications in urinary analysis is the presence or absence of casts. In order to render a reliable report upon these elements it is very essential that only fresh specimens should be sent for analysis.

There are a few special indications in urinary analysis upon which some stress should be laid.

In diabetes mellitus, one should request an examination for the detection of acetone, the presence of which is an important prognostic factor.

In cases of suspected malignant growth in the bladder or prostate, one is usually not able to determine the diagnosis by a microscopic examination of the urinary sediment. The presence of a papillomatous growth of the bladder may be recognized by repeated examinations of the sediment, but as to the malignance of the growth of which you may find a shred, evidence from a microscopical examination may not be conclusive.

It is usually quite difficult to determine the difference between acute cystitis and acute prostatitis from the urinary examination and the preponderance of evidence must come from the clinician.

In the diagnosis of hydronephrosis, the examination of the urine can lend but slight aid.

In pyonephrosis, the same is true to a less degree. If the outflow of urine in the affected kidney is absolutely cut off, then there may be no indications at all of the diseased condition, but even when there is a free outlet from the diseased kidney, the indications are apt to be indefinite.

Relative to the diagnosis of gonorrhea by the examination of a urethral discharge smeared upon a slide by the clinician it can be said that a report that gonococci are present is practically conclusive. But as regards discharges from lesions in other parts of the body suspected of being gonorrheal the microscopic examination is not sufficient, but must include the making of cultures which requires that the material be collected in an aseptic manner and in a sterile vessel or on a sterile swab. This procedure is also demanded where there is a medico-legal inquiry or where the moral status of the individual is in question.

DISEASES OF THE STOMACH.

In suspected diseases of the stomach the pathologist is often called upon to examine the stomach contents. For this purpose either vomitus or a test-breakfast can be used. The value of an examination of the vomitus is limited, as one has no idea of the food taken, the length of time it has been in the stomach, and what percentage of it may be residuum from a previous meal. Such conditions naturally interfere with the accurate estimation of the degree of hyperacidity or hypoacidity, as well as to the relative amount of lactic acid; also it precludes any conclusion as to the motor and absorbent power of the organ. Therefore, it is always essential if an accurate report is desired, and one upon which a diagnosis can be based, to have the stomach previously washed out and followed by a test-breakfast of known character and quantity, which is removed at a definite period after ingestion, usually an hour.

The three conditions for which an examination of the gastric contents is more often desired, to ascertain the causes of a chronic dyspepsia, to secure diagnostic evidence in favor of carcinoma of the stomach and to determine the presence of gastric ulcer.

In the matter of chronic dyspepsia the examination of the stomach contents is a very important factor, but it alone is rarely sufficient for the establishment of an accurate diagnosis, both because of the variation in the secretions of the stomach under physiological conditions and also because of the frequency with which abnormality in the gastric condition accompanies other diseases, particularly neurasthenia, and other nervous disorders.

The pathologist cannot under any circumstances diagnose chronic gastritis from his examination of the stomach contents. His findings will be helpful to the practitioner in reaching the correct conclusions, and are particularly valuable in presenting indications for treatment; for instance, while the patient may be suffering

from a chronic dyspepsia of neurasthenic origin, the examination of the stomach contents may indicate either a hyperacidity or a hypoacidity, which can be readily corrected by the proper administration of an alkali or hydrochloric acid, and thereby relieve considerable gastric distress until such time as the neurasthenic state can be eradicated.

In suspected gastric ulcer one can by repeated examination of the stomach contents differentiate carcinoma with which it is most apt to be confounded. A report indicative of gastric ulcer would be the presence of blood associated with a normal or an increased percentage of hydrochloric acid.

In gastric carcinoma also, repeated examinations of the stomach contents may justify the pathologist in presenting a conclusive diagnosis, yet one really needs the clinical picture of rapidly progressive cachexia with localized pain to be absolutely certain. The three important factors in the diagnosis of carcinoma for the pathologist are (1) the persistent absence of hydrochloric acid, (2) the presence of lactic acid and (3) the presence of the Boas Opler bacillus.

FECES.

A word in reference to the microscopical examination of feces. This may be either for the purpose of noting the character of the undigested food and determining the kind of food that passes through the intestinal canal undigested, for the purpose of finding intestinal parasites or their eggs, or in order to isolate specific bacterial organisms, particularly the dysentery bacillus, tubercle bacillus and typhoid bacillus.

If the examination is made for the purpose of determining the character of the undigested food, a satisfactory report can be easily obtained, but if the isolation of the specific microorganism is desired, the specimen must be carefully selected. In dysentery the stool must contain blood-streaked mucus, which has to be examined

almost immediately upon its passage. In typhoid fever a loose stool containing mucoid material should be chosen, and the same is true in suspected intestinal tuberculosis. Unless these precautions are taken it is practically useless to send the material to a laboratory.

Intestinal parasites and their eggs are apt to be elusive and require long search. Therefore a single negative report should not be accepted as conclusive.

BLOOD.

The examination of the blood may be either for the purpose of establishing the presence of a purely blood-disease, such as one of the anemias or to gain confirmatory evidence of other disease processes particularly acute inflammatory conditions. At the outset it should be stated that the examination of the blood, particularly the counting of the corpuscles, requires more technical skill and longer experience than any other part of clinical microscopy. Very few physicians are trained and equipped to do work accurately. It is, therefore necessary that the pathologist should collect the blood himself.

ANEMIAS.

The pathologist is usually able upon one examination to state positively whether the patient is suffering from a primary or a secondary anemia. The primary anemias include pernicious anemia and chlorosis. Two exceptions to the above statement should be made, namely that a case of chlorosis complicated with other diseases which are characterized by a leucocytosis cannot be distinguished microscopically from secondary anemia, and further a case of pernicious anemia similarly complicated with a disease condition accompanied by leucocytosis may be indistinguishable from secondary anemia. An examination of the blood in pernicious anemia may give an important clue as to the prognosis of the disease, and this should be asked for in a report.

In suspected cases of leukemia and Hodgkin's disease, a single blood-examination will in most instances give positive proof as to the character of the disease.

In secondary anemia very often the pathologist is unable to say more than that the patient is suffering from an anemia which arises from some disease other than a blood-disease.

The causes of secondary anemia of greatest concern to the practitioner are malignant disease, chronic suppuration, chronic nephritis, and cirrhosis of the liver. There may exist in the blood factors which will permit of a more or less definite statement that the anemia is due to a malignant disease, but inability on the part of the pathologist to state the cause of the anemia is no error.

Finally, in connection with the blood we have to consider the diagnostic value of leucocytosis in its relationship to various diseases. As already shown, the presence or absence of a leucocytosis may be an important element in differentiating typhoid fever, tuberculosis and malaria, from other acute febrile conditions. In general it may be said that leucocytosis accompanies almost all forms of inflammation, whether of a local character, as pneumonia, cholecystitis or cerebrospinal meningitis; or of a limited character, as appendicitis, abscess of lung or liver. There is nothing distinctive of the leucocytosis as it appears in each of these states, so that a report of the existence of leucocytosis may be of little import to the clinician if other diseases characterized by an absence of leucocytosis have already been excluded.

The presence of a leucocytosis may, however, be of vast importance to the surgeon who wishes to be guided as to the extent and character of the inflammatory process (serous, purulent, or gangrenous), or the resistive powers of the patient before he undertakes an operation. In determining the meaning of a report of leucocytosis, it should be remembered by the clinician that the presence of a leucocytosis is an index of the resistive powers

of the individual; that a patient with poor resistive powers, with a gangrenous appendicitis may exhibit only a moderate degree of leucocytosis, while the same lesion in an individual with good resistive powers is usually accompanied by a high leucocytosis. So again it may rest with the clinician to decide whether a low leucocytosis indicates a grave lesion in an individual with reduced power of resistance, or only a moderate inflammatory condition in an individual with vigorous resistive power.

A further factor to be noted in determining the value of a leucocytosis is the presence of physiological (digestion, etc.) leucocytosis. Furthermore, it is recognized that the number of leucocytes increase as the day advances, reaching its height in the late afternoon, so, if possible, the leucocyte count should be made as near meal time as possible, and in the morning.

One of the important functions of a clinical pathologist is to determine the nature of tissues removed from the body, such as tumor growths, uterine scrapings, excised ulcers, etc., and particularly to decide as to their malignancy or non-malignancy. This subject leads into a broad field and one of which the limited scope of this paper hardly justifies consideration.

In this brief statement it has been impossible to give a full and exhaustive consideration to all of the factors entering into the qualifications of a pathological report, but I trust that sufficient has been said to make clear the limitations of the pathologist, in offering diagnosis on material sent for examination, and how much his limitation is enhanced by the sending of poor material.

A better appreciation of these conditions will relieve the pathologist of the annoyance of having his work misinterpreted, and the physician of the disagreeable task of attempting to explain to his patient why the report of the pathologist has not been more commensurate with the discomfort and expense of having his blood drawn or his throat swabbed.

PATHOLOGY OF ACUTE LOBAR PNEUMONIA.

C. J. BARTLETT, M.A., M.D.,

NEW HAVEN.

In discussing the pathology of acute lobar pneumonia, I shall first consider the lesions of the lungs and pleurae, and then briefly those involving other parts of the body.

For a fair understanding of the changes occurring in the lungs in any pathological condition it is essential to bear in mind certain peculiarities of their structure. The direct connection of the air-spaces with the outside world through the bronchial tree is not only of importance in connection with the ease with which, under favorable circumstances, irritating particles, whether living or not, pass into them, but means that changes occurring in the air vesicles and their lining epithelium are really superficial, comparable with those occurring on the surface of the mucous membranes, or better still on serous surfaces. For this reason Orth, in his *Pathologische Anatomie*, speaks of the changes in the lung in lobar pneumonia as those of a typical superficial exudative inflammation. The cells lining the air-spaces are epithelial, but their shape, and their action in response to inflammatory stimuli, is rather that of endothelial cells, as will be seen later in connection with their rapid proliferation and phagocytic action. The spongy nature of the tissue is unlike that found elsewhere in the body, offering an opportunity for the collection of very large quantities of exudate in its spaces. The vascular supply is not only peculiar in the double circulation here, which may be of importance in connection with the phenomena occurring in lobar pneumonia, but the remarkable richness of the tissue in capillaries offers the most favorable of conditions for exudative processes. Again the intimate connection with the lymphatic system furnishes a

ready means for carrying soluble, or to some extent insoluble, substances, whether toxins or the products of inflammation, away from the lung and into the general circulation.

In acute lobar pneumonia we have then an example of a surface inflammation, that is, one where the inflammatory products collect on the surface of the organ (or, in case of the lungs, in its alveoli and smaller bronchi) the tissue itself being comparatively but little involved. The view advocated by North and others that the process is not an inflammation in the true sense of the word, but merely an outpouring of a substance from the blood into the air spaces which acts as a medium for the growth of bacteria may be mentioned here but not accepted. All the phenomena of inflammation are present.

As the word lobar implies, usually an entire lobe or more than one is involved, or at least a large part of a lobe.

The typical changes occurring in the lung have long been divided into three or more stages, that of engorgement, or congestion and edema; the stage of consolidation, which may be subdivided into red and gray hepatization; and that of resolution. The passage from one of these stages to another is not an abrupt but a gradual one and all parts of the involved lobe may not show exactly the same stage, the process being somewhat more advanced in certain places than in others.

In the first stage, that of congestion and edema, the lung is already more voluminous than normal, firmer, dark red in color, of doughy consistence, and its air content is lessened. This stage probably lasts from a very few hours to one or two days, though at times it may be prolonged. Pratt gives one case where death occurred within eleven hours after the appearance of definite symptoms in which the lung had already passed to the stage of red hepatization. In this case, however, the possibility of the disease having lasted somewhat longer is to be

borne in mind. As death does not often occur thus early in the disease the lung is rarely seen in this condition except when a second lobe is in this stage with another lobe in a more advanced condition; and even then the congestion may very readily not be recognized as indicating the first stage of lobar pneumonia.

From the cut surface of such a lung comes a turbid bloody serum. Microscopically the vessels are found to be distended with blood, there are a few leucocytes in the air spaces and some epithelial cell desquamation may be present. This very early stage apparently shows nothing necessarily characteristic of lobar pneumonia though a little later there is a cloudiness of the pleural surface and a beginning formation of fibrin in the air spaces, a condition frequently described as that of congestion but representing the transition to the second stage, that of Hepatization. The size of the lung now corresponds to that of complete inspiration. On the convex surface are seen furrows due to pressure against the ribs. The pleura is tense, its surface is covered with a layer of fibrin, now thin, now thick. As the name of the stage implies the lung now resembles the liver. This is true both in consistency and, in the first part of the stage, in color also. The lung is at first red, the color only being seen typically on the cut surface, and there is a characteristic granular appearance due to plugs of fibrin in the air spaces. This is well seen by gently drawing the edge of the knife obliquely across the cut surface, or still better by tearing the lung tissue, which can now be easily done. The fibrinous nature of these small plugs can be readily shown by treatment with dilute acetic acid, which makes them swell up into hyaline masses. The cut surface is but slightly moist. Later the color becomes grayish, or grayish-yellow. The passage from the red to the gray is a gradual one and at times the lung shows a variegated appearance due to the process being more advanced in certain portions than in others. In gray hepatization the

size is even greater than during the stage of red hepatization. The furrows on the surface are frequently marked. Also the granular appearance is at first more distinct and the consistency increased, but as the color becomes yellowish each of these is less pronounced, the cut surface is more moist, from it can be scraped a liquid somewhat resembling pus, and the lung gradually passes into resolution. During hepatization the lung is very friable, particularly in the stage of gray hepatization. This increased friability of the lung is due in part to the fact that the thin septa between the air spaces are stretched and so offer less resistance to tension exerted upon them, and in part to the fact that the elastic tissue of the lung has become more brittle than normal as the result of injurious inflammatory changes; for the interstitial lung tissue does not entirely escape injury in this disease. As the liquefaction of the exudate continues and this is removed, crepitation reappears until the lung gradually becomes normal; the stage of resolution.

The histology of the lung in acute lobar pneumonia has been particularly well studied by Pratt (*Contributions to the Science of Medicine*, Wm. H. Welch Festschrift), from whom I shall quote. Early in the stage of red hepatization he finds present large numbers of cells resembling the so-called transitional leucocytes of the blood, not the polymorphonuclear leucocytes. Later in the disease they were absent, being rarely found after the sixth day. These cells were frequently phagocytic. In one case, dead in eleven hours after the first symptoms, which showed pure red hepatization, the air spaces were filled with these non-granular cells imbedded in a meshwork of fibrin. There were many red blood-corpuscles and numerous lymphocytes, but no polymorphonuclear leucocytes in the exudate. Whether these large non-granular cells which are present in such great numbers come from the blood-vessels or are due to a proliferation of the lining cells of the air spaces he was unable

to determine, but they were found in the capillaries of the lung as well as in the alveoli. The number of red blood-corpuscles in the exudate is very variable in different lungs at the same stage, and even in different alveoli in the same lung. They may be almost entirely lacking even in red hepatization so that the masses filling the alveoli appears as gray specks, but in spite of this the color of the lungs is bright red because of the marked hyperemia, the blood in the vessels being seen through the exudate which is still translucent. The capillaries in the walls of the air cells are distended and tortuous. In all cases dying after the third day Pratt found the predominant type of leucocyte to be the polymorphonuclear. They often appeared in large numbers within the first forty-eight hours. Large phagocytic cells were present in nearly every case, and late in the disease were seen in enormous numbers. These probably come from the lining epithelium as lungs containing many of them showed marked proliferation of the epithelial cells. After the ninth day these desquamated epithelial cells frequently predominated in the exudate. The most common inclusions of these cells were polymorphonuclear leucocytes. Often partially digested cells or only nuclear fragments were found. Cells still lining the air spaces were seen containing leucocytes and red blood-corpuscles. These phagocytic cells probably play an important part in the process of resolution.

The interstitial tissue appears, microscopically, to be normal until late in the disease, though a fibrinous exudate may be found in it. Infiltration with polymorphonuclear leucocytes is only rarely seen, but during the second week of the disease there may be great infiltration with lymphoid and plasma cells. The connective tissue cells may be swollen and the tissue edematous. Pratt found thrombi in the smaller vessels and capillaries in over half the cases examined, and emboli composed of giant cells of the bone marrow were frequent. These

latter have also been described by other observers. The anemic condition of the lung, which is an important factor in the change of color from the red to the gray hepatization, seems to be due in part to the thrombi found in the vessels, and in part to the compression of the capillaries in the walls by the exudate as it increases in the alveoli, thus hindering the flow of blood in the vessels. Presumably this anemia is less marked during life in the stage of gray hepatization than the post-mortem findings would indicate and first becomes extreme with the failing heart's action which favors thrombosis due to the circulation becoming more sluggish, and which allows the pressure upon the capillaries to become effective and occlude them.

In the small bronchi fibrin plugs, or a cellular exudate similar to that in the air spaces, are frequent. Their mucous membrane is usually intact and the walls of the bronchi do not show inflammatory infiltration, though there may be exceptions to this and they may contain polymorphonuclear leucocytes, and the lining epithelial cells may be desquamated.

The amount of exudate present in the lung in lobar pneumonia is large. It has been found by Hodenpyl to be from three to four, or even six pounds in weight. The changes occurring in this exudate by which such an amount of it is rendered absorbable are of interest. The gross appearance of the color from red to gray indicates that such red blood-corpuscles as may be present in the air spaces probably become decolorized, and this is found microscopically to be the case. But this change to gray or even yellowish is not alone due to a decolorizing of the red blood-corpuscles nor to the compression or thrombosis of the blood-vessels, nor to these together with the increased number of leucocytes which may have collected in the air cells. As the pale yellow color seen in the later stages of gray hepatization suggests, there is a fatty degeneration of the emigrated leucocytes and

desquamated epithelial cells. The fibrin also undergoes a granular disintegration. The pus-like liquid which results from this softening may be mistaken for a purulent infiltration and, as Orth remarks, a depression which is easily made by the finger in the lung tissue, which is now very friable and tears readily, may when filled with this pus-like liquid bear great similarity to abscess formation for which it may be mistaken.

While the softened exudate may be to a slight extent removed through expectoration, it is chiefly carried off through the lymphatics. The rapidity of absorption of the exudate apparently depends then upon the condition of the lymphatics. If these have already been lessened in number due to emphysema, or if the inflammatory interstitial changes in the lung during the pneumonic process have been sufficient to produce lymphangitis, with thrombosis of the lymphatics, the process of absorption may evidently be delayed, as the lymph vessels must be pervious before the exudate can be removed. Some such changes in the lymphatics, destroying them or rendering them impervious, may be important in causing delayed resolution. As the bronchioles and alveoli become partially or entirely emptied of the exudate, crepitation on pressure reappears. The lining epithelium is regenerated by the proliferation of the remaining epithelium. For a time after the removal of the exudate the lung is said to be somewhat more voluminous and paler than normal because the impairment of its elasticity makes the walls of the air spaces less resistant to the air pressure within these spaces.

The time of development of the different stages of lobar pneumonia is not constant so that it is impossible to tell definitely from the post-mortem findings how long the disease has lasted. Such a description as that given may be said to represent the conditions found in the lungs of a case of moderate severity in which six to eight days have elapsed from the beginning of the disease up

to the commencement of resolution. But not all cases of true lobar pneumonia last for this time, from which it follows that either the different stages must be passed through more rapidly under certain conditions, or the process may stop and undergo resolution without passing through all of these stages. Either of these may probably occur. The average time given for the different stages is one or two days for that of hyperemia, less in many cases; two or three days for that of red hepatization; and about the same time for gray hepatization.

Statistics regarding the relative frequency with which the different lobes of the lung are involved vary to some extent as seen by comparing Jürgensen's analysis of 6666 cases of pneumonia with Orth's statements, though all agree that the right lung is more often involved than the left, and the lower lobes than the upper. According to Orth, approximately 52 per cent. of all cases are right sided, 33 per cent. left-sided and 15 per cent. involve the lungs on both sides. The lower lobes alone are involved in 48 per cent., in 27 per cent. together with other lobes, that is 75 per cent. in all. The upper lobes were involved alone in 20 per cent., with other lobes in 20 per cent., that is 40 per cent. in all. When two lobes are involved one is always more advanced than the other, and frequently when only one lobe is involved one part of it may show a more advanced process than the remainder.

The condition of the smaller bronchi has already been referred to. The larger bronchi may be more or less hyperemic or may be covered with a mucous or a muco-purulent secretion. The exudate on the pleural surface is not necessarily limited to the lobe or lobes which are in the pneumonic condition but when, for example, the upper lobe is involved the pleural surface of the lower lobe may also be covered with an exudate. This pleural exudate often consists merely of a thin coat of fibrin though not infrequently it may be considerable in amount and may then be sero-fibrinous or purulent.

In addition to the changes in the consolidated lobes the remaining portions of the lung show certain compensatory changes which modify their blood-content and air content. They are congested and their air spaces are more distended than normal, a moderate compensatory emphysema edema may also be present.

There are a considerable number of cases in which the pathological findings differ from those which may be spoken of as usual for lobar pneumonia. Thus at times the fibrin content of the exudate is relatively small and the alveoli are not markedly distended. As a result the consistency is not liver-like during the stage of consolidation, and the cut surface is less granular than usual. This is particularly common in old people, in the debilitated, and in children. Also in alcoholic and cachectic persons the exudate may be more hemorrhagic than that above described.

At times when the beginning of the pneumonic process is near the root of the lung the inflammation may not have extended sufficiently before death to involve the whole lobe, but the lung tissue still containing air may be found separating the pneumonic portion from the pleural surface.

Among the lung complications in acute lobar pneumonia are to be mentioned gangrene, abscess formation, and delayed resolution with organization of the exudate. The first of these, gangrene, is rare. It occurs more frequently in those cases where the circulation is weak and where the exudate is decidedly hemorrhagic and also where a putrid bronchitis with bronchiectasia is present. These conditions evidently favor death of the tissue and secondary infection of the necrotic area. The tissue in such gangrenous area is dirty-gray in color, pulpy, and of a fetid odor. There is at first no sharp line of demarcation between the gangrenous portion and the other parts of the lobe. Usually an infection of the necrotic tissue with putrefactive bacteria is present. Abscess

formation is still less frequent than gangrene. When present this may be due to the exciting cause of the pneumonia alone or to this in connection with the common pus producers, or to the latter alone.

Under certain insufficiently understood conditions the exudate instead of undergoing resolution remains unabsorbed for a considerable time. This perhaps is connected with some pathological condition of the lymphatics as above suggested. There then occurs a process similar to that seen in the replacement of a thrombus by newly formed tissue. A cellular connective tissue grows out from the walls of the air spaces into the exudate more or less completely filling these. By such a delayed resolution with replacement of the exudate the lung tissue becomes firm, flesh-like (carnification.) The exudate in such delayed resolution rarely if ever becomes changed into a cheesy substance. The latter condition, even if found involving an entire lobe, is probably a tubercular pneumonia and not the remains of a croupous inflammation.

In referring to the condition of other organs than the lungs in acute lobar pneumonia Pye-Smith (Allbutt's System of Medicine, Vol. V., p. 112) says, "In an autopsy on a case of primary pneumonia we expect to find the lungs only diseased, and an exception is rare." This statement seems hardly to represent the facts. Two varieties of changes in the other organs are to be mentioned, one of which is commonly present in the disease and is presumably due to the action of soluble toxic substances circulating in the blood, while the other is rarer, is commonly referred to as a complication of the disease but can be shown to be due to the same exciting cause as the pneumonia itself. In the first set there are the changes seen in the heart muscle, in the kidneys and liver, in the spleen, in the ganglionic cells of the central nervous system and in the blood. In the heart, kidney and liver evidences of acute parenchymatous degeneration are com-

mon and are undoubtedly of importance in connection with the weakened heart's action and with the albuminuria which may develop. The spleen often shows acute enlargement due to congestion, with more or less hyperplasia. In the ganglion cells chromatolysis is described. The blood shows in the great majority of cases a leucocytosis. Belonging to the second variety of changes are to be noted pericarditis which occurs particularly in cases of double-sided pneumonia with much purulent pleural exudate. Also endocarditis and meningitis, inflammation of the joints, etc. as well as serous or sero-purulent infiltration of the tissues in the mediastinum and of the connective tissue of the thorax and neck. These may be shown to be due to the local action of the same exciting cause that is accountable for the pneumonia.

In describing the microscopic constituents of the exudate in the air spaces in pneumonia all reference to the presence of bacteria was intentionally omitted. As their presence in or absence from the lung or other tissue is directly connected with the question of the etiology of the disease a brief discussion of that point may be here given. The pneumococcus of Fränkel may frequently be found in large numbers in the solidified lung. They are said to be found more plentifully in the early stages than later. Others state that when the exudate is very cellular they are more liable to be found in numbers than when it is chiefly fibrinous. The causal connection between the pneumococcus and the disease is now quite generally accepted, many authors adding, however, that the disease may be caused by other bacteria as well. A few, and even those who speak with considerable authority, doubt that the pneumococcus is the specific cause of the disease. As indicating the proof that exists that the diplococcus pneumoniae appears to be the specific exciting cause of acute lobar pneumonia, I shall quote from the report given by Pearce (Boston Medical & Surgical Journal, Dec. 2, 1897.) of the results of the post-mortem

bacteriological examination of one hundred and twenty-one fatal cases of the disease, made at the Pathological Laboratory of the Boston City Hospital. The work was done under the supervision of Drs. Councilman and Mallory. I have chosen this report because it shows the frequency with which the pneumococcus may be found in the disease by careful workers using the most approved methods for its detection. The results are confirmed by those of other competent observers working under similar conditions. In this series of one hundred and twenty-one cases the pneumococcus was obtained from the solidified lung in one hundred and ten cases, in eighty-four of which it was the only micro-organism present. In the remaining cases it was most frequently associated with the common pus organisms, rarely with the diphtheria bacillus or other bacteria. Of the remaining eleven cases in which it was not obtained from the lung, no lung cultures were made in four, in two others the cultures from the lung were lost, and in two others they were sterile, but in each of these eight the pneumococcus was obtained either from the pleural exudate or from other organs of the body. In each of these cases it seemed probable that the presence of the organism in the other parts of the body was secondary to its growth in the lung. Including these eight cases the pneumococcus was found in one hundred and eighteen of the one hundred and twenty-one cases, or 97.5 per cent. The other three cases were both macroscopically and microscopically, true lobar pneumonia. In two of them there was a sufficient number of pus organisms to readily overgrow the pneumococci if these were present. The third was a case well along in the third stage in which the staphylococcus albus was alone present. In every case in which cultures were made from the pleural or pericardial exudate, fifteen of the latter, it was found present. In abscess of the pneumonic lung it was present in all of the three cases examined, twice being alone. Also in two

cases of acute meningitis and three of acute endocarditis accompanying or following lobar pneumonia it was present in pure cultures. This was also true in one case of acute fibrinous peritonitis.

The question of systemic infection was also studied by Pearce. Cultures made from the heart's blood showed the pneumococcus fifty-six times in this series; from the liver, forty-four times; from the spleen, forty-seven times; from the kidney, fifty-one times. In eighteen cases all four of these organs gave a growth of it; in eighteen others three of them; in twenty-one others two of them; and at least one organ in twenty-four other cases. In conformity with this systemic infection is the presence of the pneumococcus in the blood during life. Until quite recently the demonstration of it in the circulating blood was considered of most unfavorable prognostic significance. It is now known to be present in the blood in the great majority of cases, probably in all, and can be obtained by withdrawing 5 to 10 c. c. of blood and planting on appropriate media.

The following conclusions given by Pearce seem justified: The pneumococcus is almost universally present in true lobar pneumonia and its complications. Its presence in pure culture in the majority of cases indicates its etiological relation. General infection in fatal cases is quite frequent and therefore of considerable importance both from a bacteriological and from a clinical point of view.

THE MANAGEMENT OF PNEUMONIA.

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Pneumonia, second only in importance to tuberculosis, has begun to compete with the latter in claiming the attention of municipal boards of health. Certainly during the last ten years the number of reported deaths from pneumonia has greatly increased in most of our large cities. This reported increase, however, is not an absolute one, as with the ever-advancing education of the people along insurance lines many certificates are handed in for pneumonia which really should be for consumption. Also, many deaths of children are now reported as due to broncho-pneumonia which were previously reported as deaths from bronchitis or capillary bronchitis, and statisticians compute broncho-pneumonia with pneumonia.

However, the fact that pneumonia is the most fatal of all acute infections is my excuse for considering a subject which is so well understood. We can, perhaps, not have too frequent discussions of a disease that so many times baffles us all, hence in making a few suggestions I may be pardoned for reciting many well-known truths.

In considering inflammation of the lung we should not forget that it has two distinct systems of circulation; that derived from the pulmonary arteries carrying venous blood to the air-vesicles and returning the aerated blood through the pulmonary veins; and that coming through the bronchial arteries from the aorta carrying arterial blood and nutrition to the lung tissue, a weak right side of the heart impairing one circulation and a weak left

side of the heart impairing the other. Also, a weak right ventricle will allow a profuse bloody or prune-juice exudate and expectoration, while a weak left ventricle may be one cause of the lack of resolution in a pneumonic lung.

Pneumonia is an infection, and often causes a temperature out of all proportion to the amount of lung involved, or may cause irritation of the brain out of all proportion to the local manifestations. The germ that causes this disease may migrate to different parts of the body and cause trouble in different parts, and such secondary infections are frequent.

Probably, ordinarily, only the toxins of the pneumococci enter the blood and cause the later symptoms of toxemia. If the pneumococci themselves enter the blood various complications occur, such as empyema, perhaps from the extension of the infection, endocarditis, middle ear or mastoid inflammation, or a joint complication. The crisis of pneumonia may be due to the pneumococci themselves producing enough of their own toxins to inhibit their further growth somewhat like the ferment of the tubercle bacilli, or it may be due to a sufficient amount of antitoxin formed in the blood to combat their growth or their toxins. In normal cases this occurs at the eighth, ninth or tenth day. If such crisis does not occur it is probably because other fresh foci of pneumococci have started new fresh toxins or because the leucocytosis is not sufficient or an antitoxin is not produced in sufficient amount. The toxin formed by the pneumococci seems to be a decided depressant to the heart, vying, perhaps, with the depressant action of the diphtheria bacilli.

Although there cannot be a real pneumonia without the micrococcus lanceolatus of Fränkel or Sternberg, we recognize a streptococcus pneumonia, which is the variety that develops upon la grippe, or influenza. Traumatism does not produce true pneumonia.

The blood-count in pneumonia is interesting and prognostic, leucocytosis of the large polymorphonuclear cells being always present except in cases of bad prognosis. This leucocytosis varies in amount, but in ordinary severe cases should be not far from twenty thousand per cubic millimeter. A low white blood-count either indicates a very mild infection or more frequently the inability of the system to react to the infection, and a persistently low blood-count gives an unfavorable prognosis.

The principal danger in this disease lies in heart-failure, and it is the right side of the heart that generally fails. This can sometimes be foretold by the accentuated closure of the valve at the pulmonary orifice suddenly becoming less pronounced. At this time fibrin seems to easily form in white clots, sticking to the chordae tendineae, to the wall of the heart or to a valve, causing murmurs and such obstruction is often the final cause of cardiac failure. Also, a weakened right ventricle may cause enlargement of the liver and even some jaundice from passive congestion, enlargement of the spleen, and albuminuria.

The greater the consolidation and the more lung tissue involved, the more difficult it is for the right ventricle to force blood through the pulmonary circulation. This causes an overfilled right ventricle and an under-filled left ventricle, and often therefrom irregular contractions of the heart and the dicrotic pulse, a dangerous symptom. The imperfect action of the right ventricle can cause the peculiar dark dusky hue of the countenance due to venous stasis, and except in collapse this is not due to lack of oxygen or lack of aeration of the blood, as the rapidity of respiration, nature's way of increasing oxygenation is generally sufficient. This same venous disturbance is doubtless often the cause of the cerebral irritability, restlessness, wakefulness and finally delirium which occurs so frequently in pneumonia,

and there may be even sufficient congestion in the brain to cause an extravasation of liquid into the ventricles even without actual infection of the meninges.

Though doubted by some, I believe that pneumonia can start from the central part of the lung, so-called "sneaking" or central pneumonia, and in the first stage give no positive physical signs. The symptoms which should cause such a pneumonia to be suspected are fever preceded by a chill, some cerebral congestion, flushing of the face, often herpes of the lips, and increased respiration.

We must also recognize the not infrequent occurrence of pain referred to the abdomen, even low down, from lung irritations. This occurs not infrequently in children with pleurisy and even with pneumonia, and can occur in the adult. Also, some of these abdominal pains and abdominal resistance are due to associated diaphragmatic irritation, which is a condition often ignored or overlooked. Hence with obscure abdominal signs, with fever, the lungs should be carefully interrogated.

Besides the interest which attaches to the microscopical and bacteriological investigations of the sputum, which will always give a clue as to the character of the infection that we have to combat, it is interesting to note that the sputum contains a large amount of albumin and sodium chloride, which latter is probably the reason that the urine contains so few chlorides during the pneumonic process. This also gives an indication to supply sodium chloride and plenty of albumin with the nutrition.

Deaths occurring during the second and third days of pneumonia are often not caused by a large amount of lung involved, but by apparently the intensity of the infection. This sort of toxic death is seen in malignant diphtheria, malignant scarlet fever, and malignant dysentery, and perhaps means, as I have elsewhere termed it, "medical shock," which is probably a toxemia suffi-

cient to prevent leucocytosis and to paralyze the supra-renals and the vaso-motor system. Deaths that occur later are generally from exhaustion, and largely from cardiac exhaustion, and except in double pneumonia, are not due to the amount of lung involved.

As to the prognosis of conditions, it may be stated that a very severe chill in the beginning shows the infection is serious. When both lungs are involved less than half the patients recover. A feeble or dicrotic pulse or a pulse too high for the temperature is a bad omen. A temperature up to 105 is not particularly objectionable if short-lived, but above 105 there is progressively more danger. A concomittant bronchitis of the other lung is very undesirable, and of course edema of the lungs is dire. Valvular lesions of the heart, kidney insufficiency, or an arteriosclerosis makes the prognosis bad. Scanty expectoration in the second and third stages is often of bad omen.

The mortality varies with age, the lowest, about ten per cent. or even less, being between the ages of twenty and thirty, while the highest mortality is from fifty to sixty per cent. being in patients over fifty. Hospital cases do not do as well as private cases. This is natural from the class of people that are taken to the hospital with pneumonia, and also on account, generally, of the severity of their exposure.

We may premise any suggested therapy by the assertion that about fifty per cent. of the cases of pneumonia will get well by good nursing and good nutrition and proper hygienic surroundings. Of the other fifty per cent. a great deal can be done and a great deal must be done by the physician, and except in about the above fifty per cent. pneumonia does not necessarily tend to recovery. However true it may be that twenty or more years ago pneumonia tended to recovery, since the last La Grippe epidemic pneumonia in at least fifty per cent. of cases does not tend to recovery.

Although we have no specific treatment against pneumonia and cannot shorten its process or fight the pneumococci as such, as is so well said by Pell, of Amsterdam; "It would be a poor captain who leaves his ship to its fate because he is not able to subdue the gale. It is just his high duty which must not be underrated to steer the ship clear of breakers and cliffs safe into the sheltering port. Therefore the management of pneumonia is of great importance."

A word as to prophylaxis. While we have been turning our attention toward the prevention of tuberculosis and promoting sanatoria for the treatment of that disease, pneumonia has been increasing its ravages. Doubtless the pneumococcus is wafted about in the dust as is the tubercle bacillus, and as a matter of fact pneumococci are many times found in the mucus of the mouth and throat, although it probably never causes pneumonia unless it reaches the minute bronchi or an air-vesicle to which place it may be conducted by any catarrhal condition that may be present, and especially easily when the la grippe germ is at work.

Among the inmates of damp, ill-ventilated, dark and crowded dwellings pneumonia occurs the most frequently, although prolonged exposure to cold, and especially such exposure after exhaustion, is a strong predisposing cause of pneumonia. Also, the presence of some other infection, as measles, whooping cough, influenza and typhoid fever is a frequent cause of this disease. As for tubercle bacilli so are these dark tenement-houses breeding places for the pneumococci, and certain houses can positively be stigmatized as pneumonia breeders, and from these places the pneumococcus is disseminated, and no walk of life is exempt from its onslaught. The disease is also certainly communicable directly, hence pneumonia should be a reportable disease, and the boards of health should begin to disinfect tenement-rooms after pneumonia as they now do after a tuberculosis case.

The first consideration in the treatment of pneumonia should be the same care as to hygienic surroundings as we take with a typhoid case, namely, a well-ventilated, large room, with plenty of fresh air, and the oxygen tank will not be as often needed. Also a patient should be frequently moved from side to side to prevent hypostatic congestion of the well lung.

I think that pneumonia can both abort itself and also can be assisted to abort. This may not be frequently true, but often is true. In rare cases in plethoric, sturdy men with a full, bounding pulse and marked signs of serious congestion of the lung venesection can be done with good results. These, however, are the very cases in which fair sized doses of a cardiac depressant or a drug like antipyrin will also be of advantage. The profuse sweating caused by a gram of antipyrin with the action of some brisk purge, followed by morphine to stop the pain, and dry cupping, or if preferred, a hot poultice, may, and often does abort a case of pneumonia. The old treatment of aconite and veratrum viride will probably give the same results. Personally I do not use these drugs as I fear prolonged cardiac depression, much greater than can possibly come from one dose of an antipyretic. There certainly is no justification in giving cardiac depressants or coal-tar products after this first stage of pneumonia.

The case not aborting and the pneumonic process proceeding, the general management becomes of importance. The nutrition should be sufficient, but not so forced as to cause gastric flatulence or tympanites, any fermentation in the bowels not only adding its disturbance to the heart from the bowel distension, but also adds one more depressant and cerebral irritant by the absorption of bowel toxins.

The nutrition should be milk provided that it causes no indigestion, but probably should not be in such large amounts as we have been accustomed to give, a quart in

twenty-four hours, combined with other nutriment, being better than two quarts. Two raw eggs a day given in bouillon or coffee or with sherry or brandy as seems best furnishes the kind of albumin the patient needs. Expressed beef juice, which means more than the blood from meat, actual expressed meat serum, is one of our best heart muscle stimulants, and should be given in ounce doses, three or four times a day.

The bowels should be moved daily, often best with small glycerine enemas, or if the tongue is badly coated and there is some intestinal gas, a small amount of saline, as Hunyadi water, is indicated.

Troublesome high temperature should be sponged down with tepid water, sponging the extremities and the abdomen but not the chest. Gentle massage of the extremities is advisable with or without alcohol, as tending to promote the excretion of the muscle toxins, and to establish a brisker peripheral circulation.

If the blood-count shows the leucocytosis to be insufficient or the patient seems not to be well fighting the disease, some nuclein preparation is doubtless good treatment. This may be nucleic acid in the dose of one grain three or four times a day, or thymus in doses of three grains, or some other nuclein preparation. The dose of any of them, however, should not be large.

There is considerable difference of opinion as to the value or the advisability of local applications. Certain it is that warm, moist applications over the portion of the lung involved, during the first stage, will mitigate the pain and add to the general comfort of the patient. These applications may be of hot water or water and alcohol fomentations, but nothing holds its heat better than the old flaxseed poultice bound tightly to the chest especially if a hot water bag is placed alongside of it. Such applications should be changed every two or three hours and not allowed to become cold. They certainly seem to promote easy expectoration and often apparently

hasten resolution. In the case of children I am more in doubt of their value. It has sometimes seemed to me that the continuation of poultices, at least too long, have been the cause of stimulating, by dilating the blood vessels of the pleura, the pneumococcus to come out there and make trouble, causing an empyema, which so frequently occurs in the pneumonias of children.

In stopping the use of the poultices I believe the best method is to gradually reduce their size and then put on some warm dry absorbent cotton, and no chill will be felt and the patient will not miss the poultice. If the surroundings of the patient are such that at certain times of the day or night the room becomes suddenly colder, or the patient cannot have the care of a good nurse, poultices had better not be used.

The question then arises as to the value of the glycerine pastes. They certainly make impervious dressings, but to get their best value should be changed at least daily, and better every twelve hours. I believe they do considerable good.

Among the poorer classes where such changes of dressings are not advisable the old pneumonia jacket may be indicated and do good. I do not believe in blistering or even using iodine over the chest in pneumonia.

Many troublesome symptoms occur in pneumonia which need modification, and as above stated, although there is no specific treatment for this disease, certain it is that we can ameliorate the intensity of all symptoms. If there is an irritable cough, and not every cough produces expectoration, some sedative expectorant is indicated. Codeia seems to me better than morphine or heroin. Of course the dose of any one of the opium series should be small, as the respiratory center must not be depressed and the patient must be alert to cough as frequently as there is anything to expectorate. There seems to me to be no better stimulant for the bronchial mucous membrane than ammonium chloride in small

doses, especially if combined with a very small amount of ipecac, and this put up in an acid preparation is almost invariably well received by the stomach. The time of sweet, nauseating cough mixtures has gone by. A little syrup of citric acid or dilute phosphoric acid in watery solution and given well diluted, makes a good menstruum. I believe there is very little advantage in giving ammonium carbonate, as other cardiac stimulants are more pleasant, and it is very irritant to the stomach. If the pneumonic expectoration becomes very profuse, terpin hydrate in capsules or tablets becomes good treatment.

Now as to the care of the heart, and especially the use of alcohol. I do not believe alcohol should be given because we have a case of pneumonia, but should only be given when the circulation seems to demand it. This means that it is not to be relied upon for a long time in cardiac depression, although for a short time it will tide over such depression and whip up a flagging heart. Its tendency to dilate the peripheral blood vesicle, to bring more blood to the surface and to cause perspiration, especially when the skin is dry and its ability to aid nutrition, makes alcohol often of great value in this disease. The enormous doses of whiskey given and recovered from are certainly not advisable. The dose should be such as not to give a strong odor to the breath, not to cause a dry skin or a bounding pulse, but just enough to keep the surface of the body warm and the pulse regular. This means from one to three teaspoonfuls of whiskey every three hours provided that the heart has shown signs of weakness. If the heart still fails and the pulse tone is poor and the rate rapid, not more whiskey should be given but other cardiac stimulants. Many cases of delirium are caused by the over-giving of alcohol in acute disease. In cases of high fever alcohol is doubtless a fat-saving food as it aids in furnishing something for the system to burn, although it may not save proteid material. In cases of very low temperature alcohol is not the best stimulant.

Many times instead of alcohol nitroglycerine can be used to equalize the circulation, dilate the arteries, and render a tense pulse less hard. The dose for this purpose is 1-200 of a grain every three to six hours. Also, in an emergency a hypodermic of 1-100 of a grain of nitroglycerine will give a flagging heart a start and allow time to get the action of other drugs.

As it is generally the right side of the heart that fails, if there is much cyanosis and the veins are dilated, there is jugular throbbing and a laboring heart, venesection of a few ounces of blood may relieve this condition as may also the hypodermic of nitroglycerine just stated.

In whatever stage of pneumonia if the pulse shows very poor tension and becomes irregular, whether the rate be fast or slow, strychnia is indicated, and should be given in soluble tablets, 1-30 of a grain each, every six hours. If the heart still becomes weaker and cardiac failure is feared, it should not at first be given more frequently, but rather every twelve hours or six hours hypodermatically at the above dosage.

Besides something of a food caffeine should be given from the beginning of pneumonia in the form of coffee at least once in the morning and perhaps several times early in the day, but not late in the day on account of preventing sleep. Caffeine certainly is a decided cardiac stimulant and tonic.

If a patient is very sleepless and it is decided caffeine is best not used, aromatic spirits of ammonia or camphor, water or spirits, makes a good substitute as a cardiac stimulant. In acute heart failure the hypodermic injection of a saturated solution of camphor in olive oil may be used and repeated every half hour for several times if needed. I have never seen an abscess from such an injection.

Also, when the pulse tension begins to worry us, but not too soon, adrenalin or suprarenalin solution, one part to a thousand, should be used in drops on the tongue,

five drops every fifteen minutes for several times in an emergency or five drops every three hours regularly. I wish to caution against using suprarenalin in large doses or too long, as I believe depression can occur from it, so that as soon as the emergency is passed it is better to reduce the frequency or omit the drug entirely for a time.

Now as to oxygen. In severe cases of pneumonia it certainly does no harm to have a tank of oxygen on hand, as in emergencies it is of undoubted value. If a patient can afford it and use it freely it will relieve dyspnea of the worst stages and certainly is an aid in cardiac depression. However, it is not curative and should not be expected to work miracles.

If for any reason sufficient liquid is not taken by the patient or the kidneys are not acting well a high injection of normal saline solution is of great value provided there is no edema anywhere. If there is pulmonary edema and the heart is failing saline transfusions or injections should not be used, as the circulation has already all that it can take care of, and it is a mistake to give saline solutions in failing heart unless there has been hemorrhage or large loss of fluid.

During convalescence from pneumonia if the pulse and heart are weak there is no better cardiac tonic than tincture of strophanthus in five to eight drop doses every six hours.

Another of the most troublesome symptoms in pneumonia is sleeplessness, and if this cerebral irritation goes a step farther there is delirium, and there is nothing in medicine much harder to combat than a noisy delirium from pneumonia, and the prognosis of such is very grave. Perhaps chloral is the best hypnotic that can be given, especially if delirium is present, but we must consider the possibility of its causing cardiac weakness and perhaps combine its administration with a good cardiac tonic. Hyoscine may be used hypodermatically, and often

very successfully, and paraldehyd may be of value, but I believe the bromides should not be given as they tend to cause too much cardiac debility.

Ergot is good treatment for all cerebral congestion and irritation and may be used hypodermatically. It contracts the blood-vessels of the brain and raises the blood-pressure everywhere, therefore it can do nothing but good to a weakened circulation.

Morphine should generally not be resorted to in this delirium, as it requires very large doses to make any impression on these excited brains and such large doses are dangerous.

Severe headache may be often well combatted by an ice cap or a saline purge. Profuse perspiration, especially during the convalescent period, should not be much discouraged, but should be carefully washed off with warm water several times a day, if necessary.

Little need be said of the serum treatment of pneumonia, as its use is as yet experimental and its value unproved.

A CASE OF SLOW PULSE.

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NEW BRITAIN.

Because of the rarity of this disease—its imperfectly understood etiology—the unsatisfactory treatment and often fatal ending, I consider it a duty to report the following case, trusting that this history may add something of interest to the already published cases.

Of the three classes, of Stokes—Adams' diseases, the post-febrile, the neurotic, and the arteriosclerotic, I should be inclined to consider this case to belong to the second class, excluding the first for the reason that there had been no febrile attack, and the third because of lack of evidence of any disease of the arterial coats, placing it in the second class because of the convulsive attacks, and the eruption of urticaria, which has annoyed him for several years.

Mr. T.—aged fifty-three, druggist, born in New York state, of New England parentage. His father died in middle life of pneumonia. His mother is living at ninety. Mother's brother died of a chronic disease of the heart, and her sister died at seventy of fatty degeneration of the heart. No history on father's side beyond that given. Mr. T. had five sisters, four of whom are living and in good health, one dying of some disease of the liver.

On the morning of August ninth, 1903, whilst lying on his right side in bed, he was evidently seized with an epileptiform attack, judging from his wife's description of the seizure. Supposing that he was suffering from an attack of nightmare, to which, she states, he had been subject, she raised his head which was very cold, calling to him at the same time. As she raised his head it fell forward, and was then violently jerked backward. This was accompanied by twitching of the facial muscles. She called to him several times before he aroused to a con-

scious state, and then he asked her what was the matter. He said that he had been lying awake when he suddenly lost consciousness. After that he arose, dressed and breakfasted. He complained of feeling cold during the day though he was, apparently, as well as usual. The following morning, Monday, he arose as customary and partook of a hearty breakfast and later went to his place of business. About 10 a. m. whilst standing at his desk, working on his books, he dropped suddenly to the floor, striking and cutting slightly the scalp on the occiput. He raised himself so quickly that one of the clerks who saw him fall supposed it was a voluntary act of stooping. He then went up stairs but felt so faint and miserable that he called a carriage to take him home. Arriving there he telephoned for me and a little later, on my arrival I found him in bed.

I have known Mr. T. quite intimately for thirty years. He has always been a man of the most methodical habits, applying himself very closely to business, rarely absent from it, excepting for an annual visit of two or three weeks to the Maine woods. Regarding liquor he was very abstemious and was a moderate smoker. The venereal history was negative. During the past two years I had noticed that he was not appearing in his usual health, but as he never approached me on the subject I said nothing to him. His wife has given me some facts relating to that time.

Before giving her statement it may be of interest to relate an occurrence of ten years ago. He was returning home one evening and was overtaken by a heavy thunder-storm. Just before reaching his home, a tree on the opposite side of his house, perhaps a hundred feet away, was struck by lightning. His wife met him at the door, which in his agitation he seemed unable to open, and assisted him to a chair. He was extremely pale and his respirations were very hurried and panting. It was an hour before he rallied from his shock. He has always dreaded thunder-storms since that time. It is interest-

Dr. T. Edes the following paragraph of Mr. T. though remote may be of causative relation to his present shock is capable, judging by symptoms, of impairment of function which requires to recover from or which may be permanent. It is not known at what point the slight changes which have within the last few years taken place in so many nerve-cells, as a consequence of the transition into the degenerative ones that mark a senile senility."

His wife states that he had not been well, often complaining of fatigue and severe headaches which were somewhat relieved by attention to a constipated habit. At times the headaches were very severe lasting him day and night, but whenever he went into the woods the headaches would leave him and not recur for a month or more after his return home. Relief from business cares and changed diet may have accounted for this improvement. He has been for some years subject to attacks of urticaria manifesting itself on different parts of the body. On seeing the patient I was startled at his appearance. His face was of an ashen paleness, the skin and extremities cold but dry. The pupils slightly dilated but reacting. The mental condition was normal. He made no complaint of pain. His voice was slightly husky. Said he was cold. I took his wrist and found a perfectly regular pulse of good strength, twenty-two to the minute. I noted his pulse some little time but it did not vary from the rate first stated. Auscultation with the ear and later with the stethoscope showed the pulse to be perfectly synchronous with the heart-beat. To avoid repetition I will say that this statement was confirmed by Drs. McKnight and Porter of Hartford, who first saw the patient and later by Dr. Satterthwaite of New York and Dr. Edes of Boston. I made myself frequent examinations to discover if possible an interpolating beat but always without result. The examinations also revealed a slight en-

largement of the heart with a systolic murmur, not strongly marked. The temperature was 97.25° and during the three weeks he was in bed and under close observation the range in temperature was from 97° to 99° only once or twice, however, rising above and very seldom attaining the normal point. The variations in temperature were so slight that it was impossible to say that they were affected by the change in the pulse. During these three weeks which he spent in bed his pulse was noted many times. On the twelfth it fell to nineteen and this was the lowest point it reached and only on that one occasion. The highest point was thirty-five and like the other extreme that rate was maintained only for part of a day. Generally it would range from twenty, twenty-two to twenty-six and sometimes twenty-eight, and a chart made of the maximum and minimum daily records showed that there was an upward tendency so that when he finally left his bed there had been a decided improvement over the condition when first seen. On one occasion only while he was in bed did I notice any irregular beat. His first excursion from the house was a drive with me and the effort of putting on his overcoat and the excitement of the occasion led me to examine his pulse. I found it decidedly irregular. I gave him brandy and after waiting a few minutes the pulse had resumed its regular slow action. An examination of the blood was made at an early date by Dr. Walter R. Steiner of Hartford, with the following result:

Hemoglobin (Dare),	78%
Red Blood-Corpuscles,	4,624,000
White Blood-Corpuscles,	4,500

DIFFERENTIAL COUNT.

515 W. B. C. Counted	{ Polymorphonuclears,	70.68%
	{ Small Mononuclears,	23.30%
	{ Large Mononuclears,	4.47%
	{ and Transitionals	
	{ Eosinophiles,	1.55%
		<hr/>
		100.00%

The stained specimen showed that the red blood-corpuscles stained well. There was no polychromatophilia, and no nucleated reds were seen on counting 515 white blood-corpuscles. The red corpuscles showed also no variation in size or shape.

Examinations of the urine gave negative results.

The treatment from the outset was empirical. Believing at first that the slow pulse was the result of some autointoxication, I administered a calomel purge. The result, however, threw no light on the case and I resorted to stimulants, strychnine and nitroglycerine, after a few days discontinuing the latter, and began giving iron and arsenic. The iron and strychnine were continued for several weeks. An occasional purge of calomel was given. Nothing seemed to accelerate the heart beat and finally at the suggestion of Dr. Edes I tried digitalis, but I confess that I did not carry this treatment to a point which could have affected the pulse, ten drops of the tincture three times a day for a week being given. He required something to make him sleep and I found that Tully's powder gave the most satisfactory result.

Later in the autumn he gradually took up his work at the store, his general appearance improved and although we passed through a winter which for length and severity silenced the oldest inhabitants, he did not suffer at all from the cold. His pulse was constantly at 28—i. e., whenever observations were taken. In the latter part of March he sailed for Europe to take the Naheim treatment where he still remains and I have learned that along with general improvement his pulse has increased to thirty and thirty-two.

THE ETIOLOGY OF ARTERIOSCLEROSIS.

BY OLIVER T. OSBORNE, M.A., M.D.,

NEW HAVEN.

It is with considerable hesitation that I offer you a paper on my views of the etiology of arteriosclerosis, but a portion of ¶this audience has always been so lenient with my shortcomings, that I venture to make declarations that I may have to retract after your discussion. Certain it is that no subject is **more pregnant with interest** to-day than this one.

The symptoms of general arteriosclerosis or arterio-capillary fibrosis and its histopathology we all know, but do we note the premonitory signs of this condition which early diagnosed can perhaps be often warded off or postponed ?

It is agreed that several causes produce the condition of arteriosclerosis, and I wish to suggest a theory as to why these varied causes produce the one condition. It would seem a self-evident fact that in generalized arteriosclerosis the cause must be some irritant circulating in the blood, or some chemical disturbance of the blood, or some changed physical condition of the circulation. Therefore, it must be to modifications of the blood or its pressure that we should look for an explanation.

In the first place, the blood is life, and modification of it means symptoms, and if this modification is not soon corrected the symptoms will persist and death will occur from such modification alone. To prove this statement it is only necessary to mention anemia, leukemia, gout, neurasthenia, diabetes, Graves' disease, myxedema, Addison's disease, acromegaly, and arteriosclerosis.

It is not a diseased organ that causes death, but the

¶Read before the Fairfield County Medical Association at the Annual Meeting April 12, 1904.

absence of the function of that organ and therefore modification of the blood. It is not the local inflammation from an infection that causes death, but the toxins produced by the infection circulating in the blood. Of course there may be deaths from accidents in the course of any disease, as from embolism, hemorrhage, perforation, suffocation, etc., but if we could give new, clean blood to a patient dying from infection the local inflammation would get well.

Now what is it that makes a man have ever gradually increasing hardening of his arteries as age comes on, and then what makes him have it at a younger age? What is it that raises the blood-pressure and increases the arterial tension just as normally after sixty as is normal the bone growth of childhood, the menstruation and virility at puberty, and the menopause at forty-five? To account for the bone growth of childhood we find the thymus gland working hard up to twelve years of age. To account for puberty we find the ovaries and testicles beginning to functionate and the thyroid increasing its activity. To account for the menopause we find the ovaries atrophying. Now, what accounts for the increased tension of the blood-vessels? Why should we not look for the cause among the organs furnishing internal secretions, viz, the ductless glands? Our investigation should be of the glands furnishing secretions that modify the blood-pressure, and if possible to then discover which of these glands change their functions after sixty.

The glands that furnish secretions that modify the blood-pressure are six in number, one of which, the thymus, furnishes vasodilator stuff up to the time of the cessation of its function, viz, before puberty. Of the other five glands two furnish vaso-constricting stuff, the suprarenals and the pituitary, and three furnish vasodilator stuff, viz, the thyroid, the testicles, and the ovaries. As far as we have yet discovered, the supraren-

nal glands furnish par excellence the vaso-constrictor stuff for the organism. The circulation of the suprarenal secretion in the blood-vessels stimulates the heart and causes the walls of the blood-vessels to contract, and if injected experimentally in any large amount the contraction of the blood-vessels is enormous and capillary surfaces are blanched. Man and animals cannot live after extirpation of the suprarenal glands, neither can they live when these glands suffer from tuberculosis, i.e. from Addison's disease, and it will be remembered that one of the constant symptoms of Addison's disease is progressively increasing low blood-pressure.

We now recognize hyper-secretion of the thyroid and under-secretion of the thyroid, and why can we not conceive that the suprarenal glands can also furnish too much or too little secretion and therefore more or less vaso-contracting stuff? Perhaps, yes probably, many of the cardiac failures in acute infections are due to the action of the toxins on these glands, and not on the heart or vaso-motor centers as so often declared. Also, doubtless, pathologists in watching these glands more carefully will find that they are subject to glandular changes the same as any other organ, and can produce some of the symptoms of unclassified conditions.

I can but believe that many of the causes of shock after laparotomy are due to the disturbed function of the suprarenals, possibly through the injury or manipulations of the sympathetic abdominal nerves. While we recognize the group of symptoms which we term Addison's disease, which means more or less total absence of suprarenal function, we have not taken into consideration the fact that every secretion can not only be decreased or increased homogeneously in all its elements, but can also have certain elements only of its secretion decreased or increased. I believe that the trouble in neurasthenia is that the vaso-constrictor stuff of the suprarenal glands is not properly secreted although the

other elements of this glandular secretion may be normal in amount. This may be a temporary or a permanent condition just as disturbances of the thyroid may be a temporary or a permanent condition.

The pituitary gland also furnishes a small amount of vaso-constricting stuff. An extract of the infundibular part of this gland raises the blood-pressure and increases the heart action, but not nearly to the same extent as does suprarenal extract. This action on the blood-vessels is also a peripheral one.¹ This gland, situated in the brain, must seemingly furnish some secretion that is necessary to the brain functions, but just what prominence the vaso-constrictor secretion from this small gland has in the blood which is so well supplied by the two large suprarenal glands it is impossible to state. We do not even know why the bones grow when the secretion of this gland is increased.

Turning now to the opponents of this vaso-constricting stuff, and we find that the thyroid is the gland that furnishes the greatest opposition. Probably one of the functions of the thyroid is to dilate the blood-vessels.* and intravenous injections of the watery extract of the thyroid lowers the blood-pressure.† It is a clinical fact that I have many times demonstrated that the blood-pressure can be lowered by feeding thyroid, even in small doses, and a case has been reported where sudden death from heart-failure was due to an over-administration of thyroid.‡ In Graves' Thyroid disease, or exophthalmic goiter, low arterial tension is a more or less constant symptom, and after fifty when the thyroid begins gradually to diminish its secretions and the blood-pressure gradually

¹ Schäfer and Vincent, *Journ. of Physiology*, London, Vol. XXV, Sept. 18, 1899.

*Cyon, *Centralbl. f. Physiolog.*, Leipsic. u. Wein, 1897, p. 357.

†Oliver and Schäfer, *Journal of Physiology*, Cambridge and London, 1895, Vol. XVIII, p. 277.

‡Tidey, *British Med. Journ.*, 1902.

rises, until in old age when the thyroid has atrophied the blood-tension is at its highest and arteriosclerosis is in evidence.

The ovaries have also been shown to furnish, at least during their period of congestion, vaso-dilator stuff.* Whether there is any continued secretion of dilator stuff is problematical, this element of the secretion, perhaps, being only periodically elaborated.

The analogues of the ovaries, the testicles, as far as I am aware have not been proved to furnish a vaso-dilator stuff, but as they contain considerable nuclein I believe that we are quite justified in believing that their secretion can cause vaso-dilation as does nucleic acid. How frequently this sort of secretion enters the blood-stream, and what small part it plays in regulating the general vaso-motor tension, is not known.

After thus briefly studying the glands that furnish secretions that modify blood-tension, we must come to the conclusion that it is the thyroid that furnishes vaso-dilator stuff and the suprarenals that furnish vaso-contractor stuff, and any marked increase of tension must be due, in the absence of drug stimulation, to a diminution of the thyroid secretion or an increase of the suprarenal secretion, or to both. The only other hypothesis, it seems to me, must be the possibility of some irritant in the blood either stimulating the vaso-motor centers to keep up peripheral contraction or that some irritant in the blood finally causes a slow-going endarteritis with the resulting arteriosclerosis.

The accepted causes of arteriosclerosis are old age, nervous strain, over-eating, the abuse of alcohol, severe muscular exercise, syphilis, chronic lead poisoning, kidney insufficiency, and gout.

There may be too much suprarenal secretion at any age, or too little thyroid secretion at any age, but old age with its normal high arterial tension is probably due to

*Bandler, Medical Record, March 16, 1901.

an absence of thyroid secretion and the consequent relative, at least, increase of suprarenal secretion. A man with this increased pulse tension often has, perhaps, for years, good compensating hypertrophy of the heart to overcome this increased peripheral resistance, and Albutt* thinks there is also an hypertrophy of the muscular coats of the arteries. Hence as long as there is this increased power of propulsion of the blood the man has no trouble, but if anything upsets this muscular power he begins to have a sense of fatigue, low spirits, and some sort of general discomfort for which he may see a physician.

If we recognize the cause of the trouble at this time and the coming arteriosclerosis and give him proper advice, the disease itself may be postponed for years. He should eat less, drink less, take regulated exercise to get more blood into his muscles and relieve the arteries, take regularly once in so often a period of business rest, and perhaps some proper medication. However, these very cases, so used to hypertension as they are, cannot stand large doses of drugs that cause arterial depression without complaining of malaise. This same high tension causes increased kidney activity, and this plus the toxins absorbed from over-eating and drinking with consequent imperfect digestion, little by little can irritate the kidneys until chronic interstitial nephritis is the outcome. Also, a heart can become incompetent on exertion after years of this permanent high tension even if arteriosclerosis as such is not discoverable.

Nervous strain is now recognized as a cause of arteriosclerosis, and is a cause that is becoming more and more prominent. Few of us realize the tension under which our daily life is lived. Men of large interests, large business, stock-brokers, captains of industry, heads of corporations, lawyers and doctors, with their unceasing appointments, unceasing obligations to meet and

*The Medical Examiner, March, 1904.

short periods of physical rest and still shorter of mental rest, all cause increased nervous strain and with it increased arterial tension. Blood-pressure measurements are shown to be largely increased by the slightest nervous disturbance, mental anxiety, or intense interest. Men of brains who crave alcohol in some form do not want it so much for the momentary stimulant effect as for the vaso-dilatation which it causes, relieving this hyper-tension which is making them more nervous. The driver of an automobile against time will not have the dilated heart or the athletic heart that the racing bicyclist has, but he will have arteriosclerosis if he keeps up this nervous tension.

Over-eating is accepted as another cause of arteriosclerosis, and may be due to the absorption into the blood of too many toxins from imperfectly digested food, thus irritating the blood-vessels to contract and finally causing an endarteritis, or can we not suppose that some of these absorbed toxins may irritate the suprarenals to increased action. However, far be it from my purpose to make any statement that the increased suprarenal activity is the only cause of arteriosclerosis, but that hyper-tension is a large predisposing factor.

Alcohol is placed as another cause of this disease, and its causability may be hard to trace. Certain it is that it stimulates the thyroid gland, which gives an increased amount of vaso-dilator stuff, and the stimulation of this gland is very evident in our exophthalmic goiter cases and in hysterical women, and I believe hysteria to be due to disturbed thyroid secretion. This repeated stimulation may sooner or later cause an atrophy of this gland, and hence a diminution of vaso-dilator secretion. This is true of every over-stimulated organ or gland in the body, it becomes sooner or later, so to speak, worn out. Also, where alcohol has been found to be the only apparent cause of arteriosclerosis, there is also some liver or kid-

ney disturbance, either one of which will tend to raise the blood-pressure.

Severe muscular exercise as a cause of arteriosclerosis is not as prominent as it once was when more severe physical labor was needed. Now machinery has displaced a large part of this cause of the disease. But where there is a demand for severe muscle work it is quite probable that there is also a demand made on the suprarenals for extra secretion, and this secretion has proved to be a strong muscle stimulant. Also during increased muscular exercise there is increased tension of the peripheral arteries from contraction of the muscles. This slows the blood-stream and raises the blood-pressure in the rest of the arteries in the body, and this increased pressure constantly repeated may alone be the cause of the arteriosclerosis.

Syphilis as a precedent of this disease cannot be declared a cause until we have separated its results from the results of the chronic action of mercury, and I believe that most metals interfere with the action of the thyroid gland and that the prolonged action of mercury causes atrophy of this gland, and increased blood-tension and connective tissue formations are the result. In fact, I should here like to state my belief that all drugs which we have classed as alteratives act as such by modifying the secretions of one or more of the ductless glands.

Another cause of arteriosclerosis is chronic lead poisoning, and here again we have a metal that I think in chronic poisoning interferes with the action of the thyroid, and again we have the suprarenal in full sway, high blood-pressure, slow pulse, and connective tissue deposits.

In kidney insufficiency the blood-tension always becomes high and arteriosclerosis may occur. This may be due to insufficiency of the kidneys leaving irritants in the blood which cause a slow-going inflammation of the arteries, endarteritis, or if a considerable amount of

liquid is drunk, or but a small amount of liquid, even water is drunk, and a not proportionate amount of urine excreted, the blood-vessels are over-filled, and the blood-tension from this cause alone becomes high. Hence when there is kidney insufficiency the approved method of giving large amounts of plain water or medicinal water per day, or even large amounts of milk, I believe often not to be good treatment. Of course it is many times hard to state whether the disease of the kidney precedes the high blood-tension in arteriosclerosis or whether an arteriosclerosis preceded the kidney trouble.

A gouty diathesis is perhaps one of the most frequent causes of increased blood-tension, and certain it is that gout is an acknowledged cause of arteriosclerosis. An increase in uric acid in the blood has been proved to be often present in gouty conditions. It has, however, not been proved to be the cause. I am inclined to think that disturbed suprarenal secretion, perhaps an increase of it, which means not only the part of its secretion that increases vaso-motor tension but also all its other ingredients, may be a cause of gout. I have many times held gout in abeyance and prevented its exacerbations by judicious thyroid medication, i. e., the antithesis in many ways of suprarenal secretion.

Whichever may be the primary cause of arteriosclerosis, whether these above factors just related or whether the plus tension, certain it is that any treatment of the condition to be successful must aim to diminish the high blood-pressure. This can be accomplished well by thyroid extract in small doses if we believe there is evidence of diminished thyroid secretion, and it must be remembered that any small dosage of iodid or iodids will stimulate the thyroid gland to greater activity, and hence the long known value of this drug in arteriosclerosis.

If possible, all severe muscular activity and all nervous strain, or anything that tends to increase peripheral tension should be prevented. Large quantities of liquids,

even water, is not often good treatment, as they tend to over-fill the blood-vessels. A modified, diminished, mixed diet, alcohol free if possible, without contractor stimulants as caffeine, coffee and tea, spices, or any drug such as strychnine or digitalis, unless there is actual cardiac failure, will give us the best results.

The great value of rest, especially mental, must not be forgotten, whether this be a rest for so many hours each day, or a rest of two or three days weekly, or a rest of a month or two annually, certain it is that this increased tension when allowed periods of intermittency may not develop the disease of arteriosclerosis. The moderate use of tobacco after thirty years of age may be of benefit to these hyper-tension cases rather than otherwise. In the first place, it is a narcotic to the brain, which removes a certain amount of nervous tension; in the second place, it is a vaso-dilator and in moderate amount will not weaken the heart. In excessive amount it will precipitate a cardiac insufficiency in these cases.

In cases of arteriosclerosis without kidney or liver lesion, in a patient sixty years of age or more, it is quite possible that small doses of alcohol, especially at night, may cause sufficient vaso-dilatation to give him some bettering of symptoms that may be present, but this same improvement can generally be caused by nitroglycerine in small doses, even as little as 1-400 of a grain three or four times a day.

Nothing as yet has been discovered except opium that will diminish suprarenal secretion if this is in excess, and perhaps you will all deny that it ever is in excess.

It is possible, if I am right, that in the future one of the suprarenal glands might be removed or its artery tied in gout and arteriosclerosis. This will not seem so strange a statement if it is remembered that the thyroid is now partially extirpated or its artery tied for its hypersecretion, or Graves' disease, with increasing successful results.

REPORT OF A CASE OF ANEURISMS OF THE INTERNAL CAROTID ARTERY WITHIN THE CRANIUM.

BY JOHN SLADE ELY, M.D.,

NEW HAVEN.

It is customary to take cognizance of two types of aneurism in connection with the cerebral arteries. Not that these types are so very different in their fundamental pathological nature, but decided differences in their location and in their clinical effects make such classification desirable.

The first of these types comprises the miliary aneurisms of Charcot and Bouchard. These are by far the more common. They are usually multiple, originate from the smaller arteries of the brain, and their rupture is a frequent cause of cerebral hemorrhage, the blood in such event being extravasated for the most part within the substance of the brain.

Aneurisms of the other type are usually single and develop from the larger blood-vessels at the base of the brain. They also frequently rupture, but in this instance the blood is found on the surface of the brain and the resultant symptoms are those of meningeal hemorrhage. It is to this latter type of intercranial aneurism that I ask your attention.

Study of the cases of this sort which have been recorded shows that their symptoms, like those of other focal disorders within the cranium, are in large measure determined by the location of the lesion. In not a few cases, where so-called silent areas of the brain have been involved no symptoms seem to have been present—none, at least, until sudden rupture of the aneurism has occa-

sioned an apoplectiform attack speedily followed by death. In other cases the symptoms suggest more gradual extravasation of blood—ingravescent apoplexy—which may not prove fatal during the first attack, but may be several times repeated. In either event the symptoms of meningeal hemorrhage are ultimately well developed as a rule—coma, rigidity or paralysis of an extremity or of one side of the body, general convulsions, fever. In such cases, in which symptoms are lacking until the occurrence of rupture of the aneurism, its diagnosis is not to be expected. But this is not the rule, for in most instances for a considerable time before its rupture the presence of intracranial aneurism seems to have been indicated by both general and focal symptoms.

Of general symptoms headache, vertigo, vomiting and peculiar intracranial sensations are often present and seem to be independent of the location of the aneurism. At times also in some cases an intermittent bruit synchronous with the pulse, has been appreciated by the patient and has been audible on auscultation over the cranium. Usually, however, no such bruit is present and its absence in any case should not be allowed to unsettle a diagnosis otherwise well founded.

But by far the most important symptoms of intracranial aneurism, so far at least as diagnosis is concerned, are the focal symptoms which permit the localization of the intracranial lesion in the region of one of the larger blood-vessels at the base of the brain. Any adequate description of these focal symptoms in their relation to the various sites of intracranial aneurisms would lead us far beyond the scope of this paper, the purpose of which is primarily to present to you the history of a case of aneurism of the internal carotid artery which has come under my notice during the past winter. I shall therefore speak only of those focal symptoms which may be caused by aneurisms of the internal carotid artery.

After passing through its canal in the petrous portion

of the temporal bone the carotid artery enters the cranium through the foramen lacerum. It then turns upward and passes forward along the body of the sphenoid bone. In this part of its course it is crossed obliquely on its outer side by the sixth nerve as it passes forward to the orbit. It is also here in close relation with the cavernous sinus, the artery lying internal to the inner wall of the sinus. The only other structures of importance at all near the artery in this location are the third and fourth nerves and the ophthalmic division of the fifth nerve. These lie, in the order named from above downward, against the outer wall of the cavernous sinus, converging as they pass forward to the sphenoidal fissure.

Beneath the anterior clinoid process the artery turns abruptly upward, inward and backward and perforates the dura mater just internal to the clinoid process. Here it comes into very close relation with the optic nerve, which lies in front of the artery and somewhat above and internal to it. It should be remembered that up to this time the course of the artery has been extra-dural.

After perforating the dura mater it soon turns again and passing upward and outward reaches the anterior perforated space at the base of the brain where it divides into its two terminal branches, the middle and anterior cerebral arteries. In this part of its course it is in relation with the olfactory nerve, whose roots emerge from the brain just in front of the anterior perforated space.

It would thus appear that the course of the carotid artery within the cranium is exceedingly tortuous and that its relations with adjacent structures are unusually diverse in view of its comparative shortness.

It is a well established fact that aneurisms are particularly liable to form where an artery gives off its branches, where it turns abruptly in its course or where it comes into close relation with bone. And so we find in the case of the internal carotid that there are two places in par-

ticular at which aneurisms are apt to form. These are near its sharp upward bend beneath the anterior clinoid process, (at which point it gives origin to the ophthalmic artery) and at its bifurcation, just below which it is joined by the posterior communicating artery. Cases are also on record in which the aneurism has sprung from the artery just after its emergence from the foramen lacerum and just after its perforation of the dura mater, but these are unusual locations for it.

In two of these locations aneurisms, even of considerable size, may give rise to no focal symptoms whatever. These are at its bifurcation and at the foramen lacerum. In the other positions, unless they are very small they usually exert pressure on adjacent nerves sufficient to produce irritation or degeneration. Those originating from the artery as it passes along the body of the sphenoid bone or beneath the anterior clinoid process commonly press on the sixth nerve as it passes along the artery between it and the cavernous sinus. If the aneurism is large, and particularly when it involves the artery near its upward bend beneath the clinoid process there is also apt to be pressure on the ophthalmic division of the 5th and on the 3d and 4th nerves as they pass forward to the sphenoidal fissure along the outer wall of the cavernous sinus. When, however, the aneurism arises from the artery where it perforates the dura mater the nerves just mentioned usually escape any considerable pressure, which is then felt more particularly by the optic and olfactory nerves, producing atrophy of the optic nerve and resultant loss of sight in the eye of the affected side and loss of smell in the corresponding side of the nose.

With apologies for this long preamble, I ask your attention now to the history of a case which I believe well illustrates the conditions which may be occasioned by aneurism of the internal carotid artery in the region of the cavernous sinus. For the opportunity to study the

clinical features of this case and for kind permission to bring it to your notice I am indebted to Dr. S. D. Gilbert, with whom it was seen in consultation on November seventeenth, 1903.

The patient, a lady then in her seventy-second year, remarkably well preserved and active for her years, complained of a severe supraorbital neuralgia from which she had suffered for more than two years in spite of all efforts for its relief.

On September fifth, 1901, she had received a heavy blow on the top of the head. This was immediately followed by very severe pain in the occipital region and right side of the head, which continued for some hours and then gradually subsided. Three days later, on September eighth, she noticed a spot of redness and "irritation" on the right eyebrow near the root of the nose. Thinking this expressed the bite of an insect of some sort she gave it little attention, but instead of disappearing as she had expected, it increased in size and became more painful. Three days later, during the night, she was seized very suddenly with severe pain in the back of the head. This pain is described as "very sharp." It continued during the entire night without abatement, destroying sleep and causing her to walk the floor in agony. In the morning a physician was called who pronounced the trouble to be shingles and administered an anodyne, which, however, gave only slight relief. The pain continued with intolerable severity for six weeks. It is described as of a boring character, as if a hot iron were burning into the eyeball, eyelid and skin of the right forehead. This was varied by paroxysms of most intense pain of a shooting character causing great suffering. Six or more such paroxysms occurred daily, each lasting a half hour or so.

The herpes rapidly extended over the forehead and upper lid of the right eye, down the right side of the nose to its tip and back for about six inches over the hairy

scalp to the right of the median line. The right eye was closed by the swelling, for the herpes was very intense, and later when desiccation occurred the area above described was covered by a dense thick crust. This herpetic condition lasted for ten weeks, during one of which the picture seems to have been complicated by a severe attack of facial erysipelas, which greatly prostrated the patient and occasioned anxiety for her recovery.

As the sight failed rapidly during this attack of erysipelas I must digress for a moment to describe the condition of the eyes prior to that time.

Since girlhood the patient had been afflicted with troublesome myopia. As time went on this condition became more aggravated until in 1886 because of failing vision she was obliged to consult specialists in New York, who diagnosticated serious intraocular trouble—separation of the retina, hemorrhages and sclerochoroiditis—but under appropriate treatment this had remained stationary. It should also be stated that internal strabismus had been gradually developing in the left eye for several years. This, then, was the ocular condition prior to the attack of shingles and erysipelas in the fall of 1901. During this sickness the sight failed rapidly, particularly in the left eye, the symptoms pointing to a fresh and extensive hemorrhage in that eye.

On November nineteenth, 1901, she consulted Dr. A. N. Alling, who has kindly given me the following notes of the condition of the eyes at that time. "High myopia with extensive changes in the fundus; sclerochoroiditis posterior, convergent strabismus of the left eye, with limitation of motion outward. Whether there was any other limitation of motion in either eye I cannot say; I at least have no notes on that point. Vision:—Right eye—counting fingers at four feet; Left eye—movements of the hand. There were opacities in the vitreous of both eyes. The ophthalmoscope revealed evidence of recent activity in the fundus of the left eye in the shape of a hemorrhage

undergoing absorption. The acute trouble from which she suffered was a small ulcer of the corner of the right eye. This healed in about two weeks, without appreciable scar."

Dr. Alling further informs me that the impression created by the history and by this examination was that the patient was suffering from neuritis of the ophthalmic division of the fifth nerve with resultant trophic disturbances of the skin and of the cornea.

But unlike the ordinary herpes zoster ophthalmicus the disappearance of the eruption was followed by only slight amelioration of the neuralgic pain, which has continued to be very severe even to the present time. With it is now associated an indescribable drawing sensation referred to the base of the cranium on the right side.

Aside from the fact that since 1894 the patient has suffered occasional attacks of severe precordial pain and oppression in the chest, sometimes accompanied by faintness and weakness in the extremities, there seems to be nothing further of note in the history of the case.

Physical examination at the time of my visit with Dr. Gilbert revealed the following:—

On the right side of the forehead from the median line to a point about two and a half inches to the right, extending backward about six inches over the hairy scalp and downward over the upper lid and the right side of the nose is an area of complete anesthesia and analgesia. The skin of the same region is thin and translucent and is marked in many places, particularly on the forehead, by irregular cicatrices, the remains no doubt of the herpes. There is anesthesia also of the conjunctiva and cornea of the right eye. The sight in the left eye is apparently gone; in the right eye it is greatly impaired. There is slight drooping of the right eyelid. The left eye is almost immobile in internal strabismus. In the right eye there is decided limitation of motion in all directions. The left pupil is somewhat larger than the right; both

pupils react sluggishly to light. It is impossible to test the reaction to accommodation because of the impaired vision. There is slight exophthalmos of the right eyeball.

The senses of smell, taste and hearing are normal. There is no facial paralysis, but from time to time there is short clonic spasm in the muscles of the right side of the face. This appears to be a reflex spasm of some sort, increasing under excitement. The tongue is protruded in the median line. There is no paralysis of the soft palate or of the pharyngeal muscles, no difficulty of deglutition, no paralysis of the extremities. Except the area above described as anesthetic, sensation is good over the face, neck and extremities.

The tongue is clean.

The pulse is 88, of low tension and the radial arteries are soft. The temporal arteries are tortuous but show no evidence of calcification. The heart-sounds are normal with the exception of the second aortic sound heard over the aortic region; this is short and rather choppy.

Respiration seems normal and examination of the lungs reveals nothing more than very slight emphysema.

This examination made it evident that the patient was suffering from a destructive lesion of the ophthalmic division of the fifth nerve, of the third and sixth nerves, and perhaps also of the fourth nerve of the right side, and that there was paralysis of the sixth nerve and to a less degree of the third nerve of the left side. The impairment of vision was believed to be consequent on her progressive myopia and to be quite independent of the other disturbances.

From consideration of the history of the case and of the anatomical relations outlined at the beginning of this paper, and concentrating attention for the moment on the conditions present on the right side, it seemed probable that the patient was suffering from an intracranial lesion located in the region of the cavernous sinus an-

terior to the gasserian ganglion, probably rather near the sphenoidal fissure, which lesion compressed the third and sixth nerves, the ophthalmic division of the fifth and in all likelihood the fourth also. The lesion was believed to be intracranial rather than intraorbital because of the absence of atrophy of the optic nerve and because of the insignificance of the exophthalmos. Furthermore the nerves are in closer juxtaposition within the cranium than in the orbit, where they separate to reach their various destinations. The lesion was thought to be located in front of the gasserian ganglion because of the escape of the second and third divisions of the fifth nerve.

Having thus localized the lesion the next question was as to its nature. The likelihood of its being a neoplasm was thought to be small in view of its long duration, of the absence of choked discs and of the age of the patient. On the other hand the suddenness of its onset, following traumatism, its proximity to the carotid artery and again the age of the patient all seemed to support the theory that it was of vascular origin, and of the vascular lesions which might occasion such a slowly progressive symptom, complex aneurism seemed by far the most probable. To test this theory, believing that if aneurism of the carotid artery were present pressure on the artery in the neck should lessen the tension within it and lead to amelioration of the pain, I gradually compressed the right common carotid with the result that the patient experienced complete relief from the painful burning and drawing sensations which had been continuous for more than two years. It may here be noted that a similar experiment on several subsequent occasions has been followed by the same result. Auscultation over the right side of the cranium revealed no bruit.

It seemed probable, then, that the trouble on the right side was due to aneurism of the internal carotid artery in the region of the cavernous sinus, but what of the trouble in the left eye? How account for the paralysis

of the external rectus and for the weakness in the muscles supplied by the third nerve on that side?

To attribute this also to an aneurism may seem visionary, but I am at a loss to account for it otherwise. No single lesion could so affect the nerves of the two eyeballs without at the same time affecting the optic nerves or chiasm, and if we must suppose two lesions why not two aneurisms? In fact this very dual character of the lesions lends weight to the diagnosis of aneurism for the reason that aneurisms of the large arteries at the base of the brain are not infrequently multiple. There are on record a number of cases of bilateral aneurisms of the carotid in the location supposed in our case.

That intracranial aneurism is not of great rarity is shown by the fact that I have been able to trace reports of about two hundred and seventy-five cases of the disease. It is interesting to note that the internal carotid artery is the third most frequent site of such aneurisms, and that the cavernous portion of the artery is that most frequently affected. Of two hundred and fifty-six cases in which the location of the aneurism is stated, in fifty-two or somewhat more than twenty per cent. its origin was from the carotid artery.

The sexes seem to be about equally afflicted with intracranial aneurisms, with a slight preponderance among males. It is also of interest that the occurrence of the disease as regards age is very diverse. Oppé reports a case in a boy seven years of age, and I have been able to find mention of twenty other cases in which the sufferers were younger than twenty years. From this age the incidence of the disease increases in men up to fifty years after which it declines, but in women it continues to increase until seventy, a difference not easy to explain.

It is also of interest that intracranial aneurisms more frequently affect the arteries of the left side.

The incidence of aneurism of the internal carotid artery

departs somewhat from the rules set forth above for intracranial aneurisms in general in that it is much more common among women than among men, my statistics showing twenty-three cases in women to ten in men. Carotid aneurisms also increase in frequency with advancing age. Thus while my statistics show only nine such aneurisms in patients below forty years of age, I have record of twenty cases in patients between forty and seventy, and of two cases in women past seventy.

As regards the side of the aneurism the general rule holds also for carotid aneurisms that they are more frequently on the left side, my statistics showing the relation of twelve to nine in favor of the left side. In about twenty per cent. of the cases there is more than one aneurism.

Among the exciting causes of intracranial aneurism four seem to be of particular importance. These are syphilis, embolism, arterial degeneration incident to advancing age and traumatism. Syphilis and embolism are in all probability responsible for the majority of cases occurring in early life; arterial degeneration for most of those developing in old age. Traumatism is apparently a rare cause.

Intracranial aneurisms are almost always of the sacculated variety, though a few cases of general dilatation of the vessel are on record. The wall of the aneurism is often exceedingly thin. Like aneurisms elsewhere they frequently contain laminated clot. A few cases are reported in which the aneurism was as large as a hen's egg; the majority are described as of the size of a pea or of a nut.

The prognosis of intracranial aneurism is always grave. Rupture, with consequent intermeningeal hemorrhage is the outcome in at least seventy-five per cent. of the cases. In a few instances spontaneous cure has occurred in cases of undoubted authenticity; in a few death has resulted from intercurrent disease. Even when rupture

occurs it may be almost indefinitely delayed. A number of cases are on record in which the aneurism has been known to exist for from five to eight years—it may have formed in these cases several years before it occasioned such symptoms as to permit of its diagnosis. In the case which I have reported to-day there is reason to believe that the aneurism on the left side has existed for at least ten years.

As regards treatment I may say that in a number of cases of aneurism of the internal carotid artery ligation of the common carotid has resulted in cure, and this plan of treatment undoubtedly gives the best promise of relief. In a few instances improvement has followed the administration of iodide of potassium, but in view of the fact that spontaneous cure has been observed, it is doubtful how much of the improvement has been due to the iodide in cases treated by that drug.

In the case here reported the advisability of operation has been carefully discussed, but in view of the advanced age of the patient and of the frequent anginoid attacks from which she has suffered for a number of years it has seemed unwise to undertake ligation of the common carotid artery at the present time. It is further to be remembered that we suppose the lesions to be bilateral in this case.

SHOULD CONNECTICUT ESTABLISH A COLONY FOR EPILEPTICS.

MAX MAILHOUSE, PH.B., M.D.,

NEW HAVEN.

Now that so many states of the union have either established or are preparing to establish colonies for epileptics, the question is bound to arise as to whether this state shall fall in line and maintain its reputation for philanthropy. The following letters received by me while a member of a Committee appointed to gather statistics on the subject, are to the point. "Dear Doctor; Is there any state provision for Epileptics, after the colony system established in New York State? I have an application for an epileptic girl about nineteen years, whose mother is anxious to give her the advantage of the colony treatment if possible."

Another, "Dear sir, I have been advised to make inquiry of you about an institution called Craig Colony. Is there, or is there to be such an institution in Connecticut of that kind——. The reason I inquire is for a young man that has fits and thought from what I have heard there might be some help for him, he does not seem to get help here." These and similar letters received from all parts of the state by the other members of the Committee. Drs. E. A. Down and F. K. Hallock, indicate a desire for some institution especially devoted to the care and treatment of this class of patients.

The questions which arise in connection with this subject are many, but for our purpose may be limited to three.

Firstly, how great is the need for such an institution?

Secondly, what is the duty of the state toward this class and toward itself? and

Thirdly, what is being done elsewhere in this direction?

Before replying to these questions, however, it might be well to give a brief picture of the average epileptic, his mental, moral and physical condition, his business relations and also his social relations, as well as to touch upon the reaction of his environment upon his disease and vice versa; also, the duty of the State in preventing the propagation of degenerates by his marriage.

The epileptic as one often meets him, wears a constant frown; his glance is ill-tempered. He is morose, the subject of intro-spection due to the nature of his illness. He knows he is a thing to be shunned by his playmates or fellow workmen; employers dismiss him, many occupations are closed to him owing to danger from injury during his attacks. Paroxysms of mental derangement sometimes occur, with violence to others. These may precede, though more often they succeed a fit. A demented state of several days' duration may follow. In the interparoxysmal state some degrees of mental deterioration may exist, particularly in cases beginning early in life, or when the fits are frequent or have gone on for many years.

As a consequence of the necessity for a long course of treatment and attention to details, the patient and his family weary of attendance on the physician, treatment is not thoroughly or properly carried out, patent medicines are resorted to and as a consequence of all these conditions the case is finally neglected and goes from bad to worse. Then it is that the patient spends his time lying about the house, listless, awaiting his attacks with resignation or he takes to walking the streets, frequenting the saloons and often winding up in a general hospital after a seizure in a public place where he has attracted the attention of by-standers and created a sympathy that extends no further than ill-advised attempts to restore him by rubbing and slapping and possibly efforts to get whiskey down his throat. The frequent attacks of grand

mal debilitate him physically leaving at times a transitory paralytic condition so that even if he has an occupation he is often prevented from following it. This makes him unreliable and hence undesirable as an employee. Furthermore conscious of his infirmity he voluntarily withdraws himself from attendance upon public functions and pleasant social affairs and thus becomes more or less a companion to himself alone which renders him melancholic and depressed. He knows that no one wants him about and fears an attack when he is out. Furthermore, mild attacks especially nocturnal and the expectation of cure might be factors which would not in particular cases stand in the way of marriage. Here the state has an interest in preventing the propagation of degenerates and feeble-minded, which is of vital importance, for cases of this type and even some of the more typical cases do marry and give birth to idiotic or feeble-minded children or those predisposed to mental alienation. On this ground alone shall not the state step in as a matter of self interest and make a move toward stopping such a factor in the causes of insane population?

In addition to the letters of inquiry received by the members of the investigation committee, the statistics gathered by us and presented at the meetings in 1901 and 1902 are of extreme value. The first investigation revealed that there were no less than 533 resident epileptics in the state as reported, of whom 224 or 42 per cent. were in public institutions; of these latter, about one half were in asylums for the insane. This leaves a large number under the care of general practitioners and in other public institutions not specially adapted for the care and treatment of epileptics. For example, thirty were reported as living in almshouses. And no one knows as well as the physician how little care and treatment, hygienic as well as medicinal, an epileptic in an almshouse gets. As a rule it is limited to the administration of Bromides immediately after a fit.

The report of the Committee in 1902 was of a more practical nature, the continued investigation having for its object the ascertaining of the number of epileptics who were proper subjects for a colony, and as to the capability of improvement in these. Furthermore, the inquiry was limited to cases over six years of age not pronouncedly insane or idiotic. From the statistics gathered and the report, I quote the following:

Of those who were considered capable of from four to eight hours work per diem, there were one hundred and sixteen cases reported. Of those who were held capable of ten hours work, there were seventy-two. The report on the mental condition revealed 151 sane and 205 feeble-minded in the class under consideration.

Among these there were one hundred and thirty-four indigent, and one hundred and forty-five pauper cases. The report further states: Firstly, there are no less than three hundred and fifty-seven epileptics in the state capable in some degree of self support, not pronouncedly insane. Secondly, that of these, one hundred and forty-eight are considered by those best fitted to judge, proper subjects for a colony.

Thirdly, that no less than one hundred and twenty are capable of improvement. And furthermore, that one hundred and sixteen or nearly thirty-three and one-third per cent. are capable of doing work varying from one to eight hours per diem, and that seventy-two or about twenty per cent. are capable of working full time. As to their mental condition, somewhat over forty per cent. are perfectly sane and less than sixty per cent. feeble-minded, but not pronouncedly so.

It was estimated that about forty per cent. were able to pay something toward their maintenance while an equal number were without any means of support. With facts such as these before us and with requests for admission to such an institution already coming in, can there be but one reply to the question of the need for such an institution?

That the state owes a duty to this class of individuals cannot be gainsayed. It educates the healthy child, why not the epileptic? It gives asylums to the epileptic insane, why not anticipate and take a prophylactic step and diminish the epileptic population in asylums for the insane by taking measures to improve the epileptics? The state or county lodges the pauper and gives him employment, why not do as much for the epileptic, who may be rendered better fitted to repay for his care and housing. Furthermore, the state owes it to itself, to care for its epileptic males and females separately and thus prevent inter-marriage and the birth of individuals who would surely become criminals or dependents.

That much is being done in various parts of the country for treating Epileptics on the colony plan will be seen by referring to some statistics published by the National Association for the study of Epilepsy, and the care and treatment of Epileptics as also by reference to other sources of information. Thus far seven states have made provision for some form of public care for Epileptics. They are New York, Massachusetts, Ohio, Pennsylvania, New Jersey, Kansas and Texas. The Texas colony, which was formally opened this spring can accommodate two hundred and fifty patients. The state legislature appropriated \$250,000 for its foundation and maintenance.

The sixth annual report of the managers of the New Jersey State Village for Epileptics for the year ending October thirty-first, 1903, states among other things: "The legislature appropriated \$26,000 for another building to be used for women. There were on file nearly three hundred applications requesting permission to come to the village as patients. There were seventy-six patients in the Village, forty males and thirty-six females, with an average age of twenty-nine years and six months. The male patients have shown a growing interest in the farm, garden and lawn work; they have given valuable

help in caring for the stock and the gathering of the crops. The female patients have done equally well in home work, in the sewing room and in the laundry."

Perhaps the most striking example of State interest in the epileptic may be seen at Craig Colony, Sonyea, N. Y., where there are now 1900 patients.

Its state law says: "the objects of such colony shall be to secure the humane, curative, scientific and economical care and treatment of epileptics, exclusive of insane epileptics." How well such aims are being carried out a perusal of the annual report readily shows. Some impressions may be worth stating. This colony was founded in 1894 by an act of the state legislature in the passage of a bill appropriating \$115,000 for the purchase of a certain property. This tract of land had certain qualifications which rendered it desirable for colony purposes, in that it was fertile and productive land, in a healthful situation, had an abundant supply of wholesome water, means for drainage and disposal of sewage. This tract is situated in the Genesee Valley. Here among beautiful surroundings most of the men work six hours a day on the farm, in the garden or taking care of stock while the women go out to work in the garden in summer. Other occupations in which the men engage are printing, shoemaking, tailoring, blacksmithing, harness-making, etc. Many of the women are employed in sewing, crocheting and embroidering. A Sloyd School forms part of the industrial work where trades are taught and carpenters, cabinet workers, etc., are developed.

The annual reports from the colony show that under the system in vogue, the mode of life, habits, environment, occupation and all exercise a wonderfully beneficial influence upon the disease; some cures are reported, many improvements and decided diminution in the number of fits.

The pioneer movement in this country was made in Ohio, where a state asylum for epileptics was established

by act of the legislative power in 1890, the corner stone of the first building being laid November twelfth, 1891. There were 1,295 admissions during the first five years; during this period eighty-one were discharged as cured and one hundred and eighty as improved. When the report from which these facts were obtained was written, there were on file upwards of 1,300 applications for admission.

The State of Massachusetts, opened on May second, 1898, a hospital for epileptics, after a report by a committee of the State Medical Society had been referred to the Governor and by him transmitted with recommendations to the state legislature. This hospital admits mildly insane epileptics as well as sane, some are private patients, some supported by the State and some by towns.

There are two private institutions in Pennsylvania, which, small though they are, are doing good work; an appropriation of \$50,000 has been asked for, for a state institution.

Maryland has a small private home for Epileptics for females only, which is the result of efforts of the King's Daughters to benefit this class of sufferers.

Missouri in 1899 appropriated \$30,000 toward establishing a colony for Epileptics and feeble-minded.

At Emmaus in Missouri is the only institution west of the Mississippi devoted exclusively to the treatment of epileptics.

This was established by the German Evangelical Synod of North America and was dedicated in 1893. For support the Home depends upon individual gifts and fees from patients.

Michigan has a State Home for feeble-minded and epileptics. Between two hundred and three hundred feeble-minded and epileptic children were waiting for admission at the close of 1897.

In Virginia public and professional opinion is strong

in favor of a colony for Epileptics and a state commission has reported favorably to the legislature, but lack of funds has thus far prevented its realization.

The Indiana State Board of Charities in its annual report makes a plea for separate institution for Epileptics.

In Canada, the Ontario government has appropriated \$30,000 for the erection of a hospital for Epileptics and work has already begun; they expect to open the institution August first, 1904.

In Europe, Italy, Russia, Denmark, Holland, Norway, Sweden, England, France, Switzerland and Germany have Homes or Colonies for Epileptics. Some of these have been founded and supported by religious institutions. Germany has been most generous to this class of sufferers and the establishment at Biesdorf, near Berlin, though originally built for Epileptics in order to relieve the asylums for insane, has become a large institution, sheltering about one thousand patients. The Bethel Colony near Bielefeld in the province of Westphalia, is no doubt the model colony. It is an Evangelical charitable institution and began its work in 1867. On July First, 1898, the settlement contained about 3,500 persons inclusive of officers, nurses, physicians and employees; of these 1,516 were Epileptics.

The Provincial Councils contribute to the maintenance of such patients as belong to the class of wholly dependent poor.

I have purposely omitted from this paper a discussion of the scientific value of such an institution from the standpoint of studies in the etiology, pathology and treatment of Epilepsy. This is readily apparent to the physician, but might not strike the layman so forcibly as the economic and philanthropic value of such an institution, unless perchance the latter acquires a special interest in the disease through the affliction of some friend or relative.

Extracts from and reviews of reports from other States could do no more than reinforce the arguments in favor of this claim for the founding of such an institution. The character of the work done, the relief both to the patient and to the family in more ways than one, the benefit to the community merely in the removal of the epileptic as a sight from the streets and places of public amusement, all these and many more good reasons present themselves for the existence of these institutions. And finally let one but think of the calamity which might be wrought by the wiping out of such an institution as exists in New York State, and I am certain that no further argument need be urged in support of our claims.

For facts concerning colonies in this country and abroad I have made use of some of the material from the most excellent volume on *The Care and Treatment of Epileptics* by Hon. William Pryor Letchworth, LL. D., New York, a philanthropist who has done much to spread throughout the land the gospel of state care for epileptics.

[After the reading of this paper a resolution was passed by the Society that a committee of three be appointed by the chair, one of whom shall be the President of our Society, to present to the incoming governor of the state a copy of this paper together with the two copies of the committee's reports referred to, and such arguments and facts as the committee see fit.

The committee consists of Doctors W. H. Carmalt, A. R. Diefendorf, M. Mailhouse, secretary.]

SOME PHASES OF CONSCIOUSNESS IN MENTAL DISEASE.

BY EDWIN A. DOWN, M.D.,

HARTFORD.

It was with many misgivings that I decided to introduce for brief consideration some phases of a subject that has puzzled many wiser heads, and is still one of the problems waiting solution. I make no pretensions to having discovered the solvent, but so many of the conditions for the favorable observation of some of the phenomena of altered consciousness were present in the cases I am about to relate, that the opportunity for their consideration and analysis was not to be lost.

At the outset it may be useful to inquire into the meaning of the concrete term conscious, and its abstract form consciousness. Some regard consciousness as an ultimate fact which does not admit of definition; but many attempts have been made to define it; and one author gets rid of the responsibility by stating that "every one knows what it is until asked to tell."

As examples of some of the attempts to describe this psychological condition, which we may employ as sign-posts to indicate the direction in which we are to proceed, I quote the following

DEFINITIONS.

"The power of the cognitive faculty by which the mind knows itself as the subject of its own operations."

"The active state of the mind that belongs to a person who is awake, as distinguished from the passive state of sleep or swoon."

Another:

“Consciousness is not susceptible of definition. It is an ultimate fact—it is the ultimate fact of our existence. We cannot go behind it. Other things are definable in terms of consciousness, but consciousness is not definable nor describable.”

Again:—

“Consciousness is the perception of what passes in one's mind.”

Still another:—

“Healthy consciousness exists when the individual while registering the impressions of the outer world to which his attention is directed at the time, correlates these with summarized observation of the past.”

One of the most recent and best defines it thus: “Any act or condition must be regarded as conscious if it is potentially memorable; if it can be recollected, under any circumstances by the subject concerned.”

I need not, at this time, multiply examples, for the reason that our text-books abound in descriptions of this condition, and those already cited seemed to me sufficient to refresh our memories before proceeding to the relation of a case or two in which alterations and alternations of consciousness occurred.

The first case is that of a female, forty years of age, married; has a neurotic history. She was quiet and rather reserved when first seen by me, but on the following day she was much excited, and made no response to interrogations. Refused food, and kept herself in almost constant motion. Rested quietly during the night, but her bed was soiled. Upon rising she appeared in a rational mood, and denied having soiled the bed. Conversed rationally upon events occurring two days previously; but denied having been excited the day before. Was noisy and untidy on alternate days. On the days in which the excited period was manifest the nurse would frequently find her patient under the bed or in some out-

of-the-way place, humming a most unmusical tune. The next day the patient would reaffirm her ignorance of any such occurrences, and declared the physician to be as untruthful as the nurses for repeating such "stuff." On several occasions during her excitement, she pulled out her hair by the handful; said she did not experience the slightest pain. An examination disclosed the existence of anesthesia in the left parieto-occipital region. This state of things continued for several months when the morbid personality and its chain of memory pictures gradually vanished and the patient regained her normal state in so far as the continuity of memory is concerned, but with a somewhat weakened intelligence. She was never able to recall events transpiring during her abnormal intervals.

Cases presenting the condition known as the psychical epileptic equivalent furnish striking instances of altered consciousness, as the following case plainly exhibits. A young man of exemplary habits while at a public dance passed into the abnormal state of perverted consciousness, and did not regain his normal self for a period of half an hour; at the expiration of that time when self-consciousness had been fully restored, he discovered himself, not in the ball-room, but in his own apartments preparing to retire for the night. He could recall being in the ball-room and taking part in one or two sets; but in what manner he reached his home or what transpired during the half-hour alluded to, are items which have never formed part of his brain records in the normally conscious state. Such cases—and they are not rare—are worthy of closer investigation by both physician and jurist on account of their medico-legal importance.

In a third case the symptoms were those of an exhaustive psychosis at first, but after several days objective and subjective impressions became indistinguishable to the patient, indicating the degree in which her chain of memories had become disarranged. The young woman

had been employed to test incandescent lights, and her occupation required her to look almost continually at them; and it was not a matter for surprise that such overaction of one center should bring about some deviation from the normal cerebral activities.

It was interesting as well as instructive to watch the oscillations between brief periods of purely self-consciousness and the protracted intervals of the purely subjective state until the supraliminal self finally triumphed, and the ability to correct and regulate the subjective sensations as they presented themselves was re-established. Recovery was complete; and the patient has been employed for more than one year; though in another line of work.

In the normal individual we consider the memory as unitary; in which all of his life experiences and sensations are integrated. In cases of altered consciousness the experiences are, on the contrary, disjointed; and the dissociated groups appear intermittently as separate memory pictures; hence the personality of the subject is separated into two or more phases of consciousness.

It will be noted that the faculty of memory directly stated or implied constitutes an important element in the make-up of the self-conscious state. This fact is suggestive and we naturally turn to inquire how this faculty may operate in inducing the condition we are attempting to describe.

Putting the interrogation "What constitutes memory?" we find a reply immediately forthcoming. Memory, it will be answered, is the faculty which is concerned in presenting to consciousness mental symbols which denote past experiences. Or, putting it another way, we say that—it is a re-cognition—a knowing over again of the facts and experiences of life through the means of their representative symbols which are presented to consciousness. Or, it is a re-collection of mental data which have become the property of the mind; and in their proper

relations constitute a normal and continuous ego. When, however, the reciprocity between the various cell-groups or colonies is disturbed, the renewal of brain records as presented to consciousness is discontinuous and intermittent; hence the divisibility of the subject's personality into as many phases as there are distinct and consistent chains of ideation. The duplication of personality is a condition with which even the laity is not altogether unfamiliar, and remarkable experiences of Ansel Bourne (an undoubted instance of this peculiar condition) have been the theme of conversation in many homes. In one case of multiple personality recorded by a recent English writer, no less than twelve distinct personalities were represented in the same individual, and an exhaustive account is given of each phase of the patient's personality which bears out the statement made at the outset, that such phases of consciousness represent separate groups of memory pictures, or impressions may I say, which have been registered either consciously or in an automatic fashion, but now appear as if awakened by the stimuli of the original sensations. Heretofore it has been sufficient to decide whether during a given interval, an individual was or was not conscious; and this seemed to fulfill all requirements. But as soon as the subject became a matter of scientific investigation, the intermediate states such as we have attempted to describe came boldly into prominence, and are rapidly being divested of the occult and mystic flavor associated with them by the charlatan and adventurer and form an important chapter in most of our modern works upon the subject of psychology. Had we hours instead of moments at our disposal, we might feel well repaid by an exchange of views upon the subject of hypnotism, somnambulism, hysterical conditions, delirium and other mental perversions brought about by exhaustion, the action of toxins, or changes in the cytoplasm bearing the fruit of heredity—all of these and more—but the time limit will admit

of only a few lines in concluding. Quoting a short paragraph, "we come to regard consciousness as an attribute which may, possibly be present in all kinds of varying degrees in connection with the animal and vegetable worlds; as the psychical counterpart of life; as conceivably the counterpart of all phenomenal existence."

We may find the counterpart of consciousness even in the simplest forms of life. Those informed tell us that in the protozoa there is an approach to the recognition of the self and non-self; and among the rhizopods are those whose appendages are cast off if they come in contact with the appendages of another of the same species. This looks like intelligence or some approach to consciousness in a very rudimentary state; and if it be true that the germ-cell carries within itself "the whole machinery as well as the whole mystery of heredity," may we not accord to the protoplasm of these unicellular organisms some function remotely related to the perceptive or conscious state? Shall we grasp nature's secret regarding these interesting phenomena by any known system of inductive logic? This is possible. Will we acquire it through accident, like many of our important scientific accretions? This is highly probable.

THE FINSSEN LIGHT, X-RAY, AND HIGH FRE-
QUENCY ELECTRICAL CURRENTS, IN CER-
TAIN DISEASES OF THE SKIN. ANOTHER
YEAR'S EXPERIENCE.

BY L. DUNCAN BULKLEY, A.M., M.D.,

NORFOLK.

One year ago the present writer had the pleasure of presenting to this Society, somewhat enthusiastically, his personal knowledge and experience in regard to the matters referred to in the title of this paper, and the incoming President very kindly and wisely asked that the same should be again presented, after a year's further observation and experience. This is gladly done, for it is always well in medicine and surgery to have previous experience confirmed or refuted; and especially in matters of such great importance as those now under consideration, it is wise to review, more calmly, at a longer interval, remedies and measures which are so novel.

In presenting my personal experience of another year in the lines of treatment indicated, I shall take occasion also to refer to the observations of others somewhat, in order to present more definitely what I believe to be the true status of this branch of therapeutics.

First, in regard to the Finsen Light, of which I spoke very fully last year. This has continued to attract much attention, especially in Lupus, and favorable reports have come from many in regard to it; although, few claim as successful results as Dr. Finsen, who has recently given tabulated results of eight hundred cases of lupus treated at the Finsen Institute.

The reason of this latter statement was explained somewhat in my paper last year, as the result of my per-

sonal observation in Copenhagen, and Dr. Finsen has recently called attention to the same in print. The truth is that the extraordinary results obtained there are not due solely to the application of light for a longer or shorter period, but to the perfect technique which long experience at the Finsen Institute has shown necessary to secure the desired end. Some of the points involved were mentioned last year, and may be briefly alluded to again. The closest personal attention and inspection is given to every patient each day, by the physician in attendance, and also by the nurses in making suitable dressings after the light treatment; moreover another special physician treats locally those diseased areas on the mucous membranes which are not accessible to the light. The patients receive the light treatment for an hour, every day, the nurse-attendant sitting by and holding the lens-compressor firmly on the spot all the time. The area treated at each sitting is only about three-quarters of a square inch, so that the process of cure is very slow and tedious, as some portions have to be treated again and again, after the effects of the light stimulation have passed off; one patient whom I saw had had seven hundred and twenty-one sittings, for a very extensive lupus.

Many attempts have been made by others to use different and stronger lamps, and to make the sittings much shorter, but, as far as I can learn, the results do not equal those obtained in the Finsen Institute. On account of the difficulties attending the treatment, especially in the matter of having an attendant devote an entire hour daily to holding the compressor, I have to report that I have not yet made use of the complete outfit in my office, brought from Copenhagen, as mentioned last year, but shall expect to do so when other methods fail. Thus far the results from the use of X-rays have been so favorable, as will be mentioned later, that it has not seemed advisable to take the great amount of time re-

quired for the Finsen light. But from what I personally observed day after day in Copenhagen, and from what I have learned of the work there since, I am fully as confident as I was last year that if the time, intelligence and patience can be given to it, the Copenhagen light treatment is one of the greatest advances yet made in the treatment of lupus. Whether the final results obtained by the X-ray will exceed those secured at the Finsen Institute remains yet to be seen; certainly thus far they are very promising, and considering the short and relatively infrequent exposures necessary, the advantages will be very greatly in favor of the X-ray, if an equally large proportion of good results can be thus obtained.

Second—X-ray therapy has continued to attract much attention and an increasing number of observers are reporting concerning its success and failure. Sufficient time has hardly yet elapsed to determine accurately the real value of this treatment in all cases, but the evidence accumulates steadily that in it we have a most powerful means of influencing nutrition and overcoming certain forms of disease. On the other hand evidence is also accumulating that it is relatively useless in certain conditions, in regard to which much had been hoped. But it is still difficult not to be really enthusiastic in regard to the results which one constantly sees in proper cases, as compared with those which are obtained by other measures, medical or surgical.

Most observers agree that in superficial epithelioma, especially of the rodent ulcer type, and situated about the face, the X-ray is most valuable, and, if properly used, cures a very considerable proportion of the cases, some of whom have now remained free from recurrence for a number of years. But many observers also agree that the X-ray has relatively little beneficial effect on deep-seated carcinoma or sarcoma, and, except in inoperable cases, experience does not warrant its use; many are very

strongly opposed to its employment in operable cases, and declare that precious time is often thereby wasted, during which a radical surgical operation would probably have been successful.

But on the other hand, the X-ray has been repeatedly observed to be most valuable in recurrent, inoperable cases, both in relieving pain and in checking the progress of the disease, while in some instances it has been followed, for a time at least, by the disappearance of the malignant disease; these results have been verified at the New York Skin and Cancer Hospital.

My figures, in the use of the X-ray during the past year, relate to one hundred and seventy cases, of which forty-nine were in my office and one hundred and twenty-one at the New York Skin and Cancer Hospital; of these, ten of the private patients and forty-three of the Hospital patients were included in last year's report, leaving one hundred and twenty-one new cases treated. As during last year, the office work was done mainly by my associate, Dr. Charles M. Williams, and that at the hospital by Dr. George Alfred Lawrence, to both of whom I am indebted for careful preparation of data relating to the cases.

In the treatment of these cases this year, there were 2,830 sittings, 419 in my office and 2,411 in the Hospital. In my office we have had but one burn of any consequence, and that was in a patient with a rather small primary carcinoma of the breast, who refused operation, and in whom the X-ray treatment was purposely pushed. The burn has lasted some two months, and is gradually healing, and the hard mass beneath has steadily lessened. There were no burns of consequence in the 2,411 applications of the X-ray in the Hospital. Both in my office and at the Hospital superficial dermatitis has been repeatedly produced, which would always subside in a reasonable time, mainly under the use of ichthyol—in the office at least.

Of the cases under X-ray treatment during the year there were seventy-one of epithelioma, eight of which • were recurrent. Of these, seven discontinued treatment soon, eleven hospital cases are reported as not improved, twenty-four were improved, some being still under treatment, and twenty-nine recorded as clinically cured. It is to be remarked that of the eleven cases as unimproved, some were of very long standing and had already produced frightful destruction; of eight recurrent cases two discontinued treatment, four were improved, and two were clinically cured.

I will not weary you with the recital of many cases, but a few data from my private practice may be of interest. The case longest under treatment is one on which I reported last year. Miss R. now aged fifty-five came to me just twelve years ago with an epithelioma of the bridge of the nose, of three or four years duration. This was thoroughly curetted and treated with pyrogallie acid, and healed well; but repeatedly new nodules would reappear, months or years after, on the scar or around, which were actively treated from time to time. In July, 1892, she returned after a long absence, with considerable epitheliomatous deposit, both superficial and in a mass beneath the left eye, movable, the size of a large split pea. X-ray treatment was begun in October, 1892, with exposures of ten minutes, at ten inches distance. The more superficial lesions melted away, and the surface became smooth, but the deep lump remained and was subsequently excised. The X-ray treatment was continued, at longer or shorter intervals up to the present time, the surface improving and the cicatrices left by former operations smoothing down so that now there is no evidence of the disease, except a little thickening, beneath apparently healthy skin in one place. She has had in all seventy-nine exposures, over a total period of 593 minutes, almost ten hours, in a period of eighteen months. Slight burns have occasion-

ally been made, which have healed well, in a short time.

This case, which cannot yet be regarded as cured, is a very unusual one, and rather discouraging. But from its long resistance to other treatment, and from the really perfect condition of the skin of the whole area, except the slight remaining subcutaneous nodule, which has steadily diminished under the X-ray, it was thought best to give this method its fullest test, as there were so many encouraging features.

In striking contrast to this case is that of an old gentleman, Mr. A., aged seventy-six, who had an epitheliomatous growth on the right malar prominence, about three quarters of an inch in diameter. For about four years he had had hardened verrucous formations, one of which had developed in six months into an epitheliomatous sore, bleeding when the crust was removed. The X-ray was applied for eight minutes at a distance of three and one-half inches, for only a single time; five weeks later he returned with a perfectly smooth, slightly reddened surface, giving no trace of the former disease. This also is a very unusual case.

Between these extremes are cases where the disease disappeared clinically in various lengths of time, with from seven to twenty-four X-ray exposures.

Last year I reported that the X-ray did not promise as much in epithelioma of the lip as in those cases where the disease was seated on the upper portion of the face, and I still believe that in the majority of cases of epithelioma of the lip, where the disease is at all extensive, a radical surgical operation is generally to be preferred. But I can report a most excellent result in one case, Mr. P., aged thirty-nine, where the disease had lasted three years before the X-ray treatment. He had twenty-four exposures, lasting in all 154 minutes, in series of from four to eight, over a period of six months.

It is particularly about the region of the eye and nose, where surgical or other treatment will often cause

so much disfigurement, and where the disease is so apt to return after operation, that the X-ray finds its greatest benefit. There were a number of this class of cases, and no words can fully express the satisfaction one feels in seeing lesions, which certainly would threaten serious results, steadily subside and heal, without leaving anything of a scar, under the magical influence of the X-ray.

Three cases of lupus vulgaris have done remarkably well under this treatment, and although none of them are yet entirely cured, a superficial glance would say that there was no longer lupus tissue present; it can, however, be detected still to a very slight extent, in isolated points, by firm pressure by means of a transparent spatula. One patient, Miss F., aged fifteen, had the disease since infancy, and has had forty-seven exposures over a total of two hundred and eighty minutes, during about one year. The disease is practically extinguished, the surface affected, on the neck, one inch by three, presents only a moderately reddened area, with possibly a few deep-seated lupus points, seen only on the most careful examination. She is to have yet a few more exposures at longer intervals, and there is every reason to believe that the result will be perfect. The other two cases in private practice are equally encouraging, hardly a trace of lupus tissue remaining, but are still under treatment. Of the six cases of lupus treated with X-rays at the Hospital, five are reported as improved and one not improved by treatment. While the results in these cases cannot yet be reported on positively, to one who watches them there can be no question that the ultimate result will be favorable, if the treatment is persisted in, as has been demonstrated by others. While the treatment seems tedious, the time occupied compares most favorably with that required for treatment by the Finsen light, where often hundreds of sittings, of an hour each, are required in severe cases. Lupus vulgaris at the best is a most distressing and often hopeless disease,

and from the manner in which its tubercles melt away under X-rays, I feel confident that this treatment will be accepted as by far the best and most feasible that has been thus far proposed.

I have to report that the case of Keloid, on the face of Miss H., aged fifteen, mentioned last year, has steadily improved, and most of the surface is quite flat. The skin burns rather readily, even under short exposures, but instead of aggravating the trouble, as do other measures, the disease seems to subside after each slight burn.

Six cases of late syphilis of the palm have been treated during the past year, with most satisfactory results; in each instance the hard, horny papules which had resisted other treatment, local and internal, melted away in a surprising manner. One of them had also profuse hyperidrosis, and he noticed that after each exposure the profuse sweating stopped for about twenty-four hours or more; but this condition which had lasted many years returned in the interval.

A large number and variety of cutaneous lesions have been submitted to the X-ray in private and Hospital practice, and while there were almost always visible beneficial results I am not prepared to speak very positively as to the final results in many of them. There were cases of Lupus erythematosus, verruca, nevus pigmentosus, lichen planus, lichen pilaris, psoriasis, scleroderma, mycosis fungoides, eczema, acne, ulcer, and Hodgkin's disease, as also tubercular glands. The Hospital care of keratosis follicularis, spoken of last year, may be mentioned as most successful. The woman who had been practically bed-ridden for nearly a year, with the distressing condition of the feet, was entirely cured of that portion of her trouble by the X-rays, and has been repeatedly seen since.

I have used the X-rays in two private cases of hirsuties, and in one of them the hair fell completely after a few exposures, but returned in some months, in lesser

degree, when it again fell after the X-ray was applied a few times. In the other case there has been some falling, but it is too recent to judge much as to the prospects. This method of treatment is not to be recommended in cases with coarse hairs, which can be treated by electrical epilation, but in both these cases there was a large amount of very fine, downy hair, which caused much mental distress, and from what has been reported by others, it is believed that a reasonable amount of repetition of the treatment will result in freedom from the trouble.

In looking back over the work of the past year with this means of treatment, I think that on the whole I am about as enthusiastic in regard to it as I was last year. For, I then spoke of it as "a valuable addition to our armamentarium," rather than as a measure which was to be indiscriminately used to the exclusion of other and well-tried remedies and methods. We have by no means yet reached an understanding as to all it can accomplish, and we are beginning to learn what it cannot do. But it has already demonstrated its efficiency in many directions, and if only the results which have been obtained in epithelioma about the face are considered, we have every reason to be profoundly thankful for its introduction, and to feel amply repaid for all the time and thought that has been bestowed upon it.

A few words may be added in regard to some practical points in regard to the use of the X-rays in therapy. Operators differ considerably in regard to many features of the work, and as yet there is no absolute standard which can be safely followed, so much depends upon the intensity of the light produced, and upon the judgment, skill and experience of the operator.

The severe and intractable burns which occurred a few years ago, in the use of the X-ray for diagnosis and photography, are seldom heard of now, if they ever do occur in its use therapeutically. But it is always wise to bear

in mind the possibility of their occurrence, and to be most careful and circumspect in the employment of this very active agency, especially in those with light complexions.

Some writers speak of ten or fifteen minutes exposures, repeated daily, but we have seldom employed the X-ray in anything like this severity, indeed ten minutes exposures are with us rare, and very commonly the duration will not exceed five minutes. It is always well to begin with a new patient cautiously, for it seems pretty certain that skins differ as to their susceptibility to this form of stimulation, as to many others. Remembering that it may take from ten days to three weeks for a burn to occur after exposure to X-rays, one should be cautious in the daily use of this measure to new cases.

There is also a considerable difference of opinion as to the distance of the target from the affected surface. We have preferred a shorter distance and shorter exposures, with a tube of medium resistance, whose rays do not penetrate too strongly.

In our earlier practice we employed heavy lead foil as a protection, but for some months have used several folds of a thick rubber cloth sheeting, as being more manageable, and serving the purpose equally well. All the work has been done with a static machine, twelve plates, thirty-six inches: We have largely used the Queen's tubes.

Third. High frequency electrical currents, a yet more recent addition to therapeutics, have also received great attention during the past year, and favorable reports constantly appear concerning their use.

During the past year I have treated twenty-seven patients, with nine different cutaneous conditions, by means of hyper-static electricity, from Piffard's generator, and it has proved a very valuable method of treatment in many instances. As reported last year, I have found it very serviceable in the removal of those rather trifling

affairs, warts, which are often very troublesome, especially on the scalp, which have been thus treated on ten patients, with excellent results, as far as can be learned. A single thorough application of the current, with a carbon electrode, produces a moderate inflammation, often with slight hemorrhage in the tissues, and the wart dries down, falls off, and the process is ended, without a scar. The same treatment has also been used with good results in four cases of small pigmentary moles on the face; only there have been generally several applications, removing a layer each time, in order to be sure not to destroy too deeply and leave a scar.

Last year I reported on a case of extensive port-wine mark on the face of a girl, aged fourteen, where certain portions thus treated had become almost normal, in striking contrast to those parts not treated. She removed after a while to her country home, and has not yet returned for further treatment. This year I have had a more striking case, that of Miss W., aged twenty-four, the right side of whose face, neck and ear, was the seat of a distressing brilliant purple, port-wine mark. She had had from others a variety of treatments, off and on for years, with only the production of some scars here and there, and very little diminution of the affected area. The results of the application of hyperstatic electricity, with the carbon electrode, at an inch distance, have been most gratifying. Considerable areas have returned to almost normal color, leaving only congestive redness, and in striking contrast to the untreated portions. Thus far she has had twenty-one sittings, and some areas have been treated more than once. There is a slight, superficial destruction of tissue, involving some of the blood vessels: in five to seven days the crust falls, and the tissue beneath shows of a pale pink, which gradually whitens. If this form of electricity should accomplish only the satisfactory removal of those disfigure-

ments, which render so many lives unhappy, it would be a boon worth having.

I have used hyperstatic electricity in three cases of acne this year, of course in connection with other proper treatment, and the result has been satisfactory, in causing the prompt disappearance of the lesions.

Three cases of lupus erythematosus have been under treatment, and while the cases are not yet cured, some patches have disappeared, leaving very little disfigurement. Two cases of eczema have been thus treated, with favorable results. The hyperstatic current is of value both in removing thickened patches, and in controlling itching. Piffard claims that it will arrest itching in severe cases of eczema, and from what I have seen of its effects I am inclined to believe that it will prove valuable in this direction: I shall make much more trial of it in this disease, and hope and rather expect to report favorable results.

Taking the year's retrospect of this method of treatment I am impressed with the fact that we have in it a new force, or mode of application of electrical force, which promises greater utility as one learns more of its powers.

In connection with radio-activity I may mention that I have been greatly interested in the use of radium in my Hospital clinic by Dr. S. G. Tracy. The number of cases in which it has been tried are relatively few, about a dozen, and while I cannot yet report any cures, I can testify that it certainly has active powers in connection with certain tissue changes. We have used it in a number of inoperable cases of epithelioma inside the mouth, and also in some external epitheliomata. The diseased tissue has become softer and diminished in size, and pain has been materially reduced and even arrested in the mouth. In two or three cases of lupus the tissues have become reddened and then shrunken, but we have not

obtained the brilliant results we were led to expect by the remarkable results reported from Paris.

The radium used has been of a high radio-activity, at first 70,000, then a specimen of many times that strength. The applications have been from fifteen minutes to an hour or more in length.

In concluding this rather rambling statement of my personal experience with the agencies under consideration, I have to say that I feel that we are only on the threshold of our knowledge of the important subjects under consideration, and that I am but an humble student of these profound subjects. Until we know more of the real nature of what we call light and electricity, and radio-activity, we must grope in the dark, with faithful, honest, and diligent experimentation, and it is only by the truthful statement of personal experience that we can make advances in what must be our main object, namely in curing disease. If my slight contribution toward this end shall advance it, even to a slight degree I shall feel amply rewarded.

DISCUSSION.

The President: Any discussion upon this paper of the Finsen Light?

Dr. Bulkley: I should like to have Dr. Skinner exhibit two photographs of a case before and after treatment by the X-ray.

Dr. C. E. Skinner: These photographs of a case of epithelioma of the face of several years standing are simply supplemental to the Doctor's paper, one showing the case before, the other after treatment. The disease had been removed surgically some time before the patient came to me, and had recurred. The case is instructive in one or two ways. There has been a wide-spread belief that it was necessary to use a tube giving rays of low penetration excited by a coil in order to secure cura-

tive effects upon these superficial processes. This case is one of several which have occurred in my own experience in which a tube giving rays of high penetration excited by a static machine has produced curative results.

It is interesting from another standpoint because it illustrates the cumulative action of the X-ray; for instance a case may be treated for a number of weeks without showing any improvement at all and then all of a sudden it will begin to get well, even if treatments have been entirely suspended. This patient received eight treatments in the course of a month with only slight apparent benefit as a result. At the end of that time he was prostrated by an attack of inflammatory rheumatism and could not get to New Haven for treatment again and I did not see him for three months. About six weeks after he took his last X-ray treatment, however, marked evidences of healing were apparent and when he called upon me three months after his last treatment the result was a perfect cure as shown in the second photograph.

It is also interesting because it illustrates the splendid cosmetic effects which follow the cure by X-rays of an extensive malignant process occurring about the face.

Dr. Bulkley did not say very much about the treatment of acne by the X-ray but those who use the agent a good deal consider it one of the most efficacious remedies for this disease at their command. I would like to show you one case of acne this afternoon which is also instructive in some particulars. This gentleman who has kindly consented to come here for your inspection is the son of a physician in Minnesota and was referred to me for treatment by his father. He has suffered for the last four or five years from a very severe and wide-spread acne of the cheeks, neck, chin, and forehead. He was treated for the first two months twice a week and improvement began at once. For the last three months he

has been treated about once a week and for the last two months the condition of his face has been practically as you now see it. I am going to treat him once a week for the next two or three months and then suspend treatment and see how he gets along. Aside from the exemplification of the curative power of the X-ray in acne this case is instructive in another particular. It is frequently stated that it is necessary to produce an erythema or a dermatitis in order to benefit acneiform eruptions. There has never been the slightest evidence of dermatitis in this case from the beginning of the treatment to the present, yet the condition has been practically cured as you see. I have been particularly careful not to burn him and this is the reason why the treatments have been so far apart.

It has been stated that radium will sometimes accomplish therapeutical results that the X-ray will not accomplish because a few cases of superficial skin affection have healed while radium was being applied after they had failed to heal under more or less lengthy application of the X-ray. It seems to me that in view of the fact, illustrated by the first case of which I spoke this afternoon, that the curative action of the X-ray is sometimes not manifest for several weeks after the treatment has begun and that it sometimes is first manifest several weeks after treatment had been suspended, that we ought to be a little careful as yet in drawing definite conclusions upon this point. We do not know enough about the action of either the X-rays or radium to justify us in drawing definite conclusions as to the relative merits of these two therapeutical agents. That radium does exert marked curative influence in the same classes of cases that are amenable to X-ray therapy is undeniably true, but those who have used radium extensively side by side with the X-ray, are not inclined to abandon the X-ray in favor of radium, which seems to me sufficiently significant to induce us to withhold

our judgment as to the relative efficiency of the two.

The President: Gentlemen, we have time for just one more paper, and I am going to ask Dr. Carmalt to take the chair while that paper is being read.

Gentlemen, I want to thank you in that you have conferred the honored position of President of the Connecticut Medical Society upon me for the past year and I want to thank you for your forbearance with my shortcomings. I want to thank you also for the kind attention with which you have listened to the papers of the gentlemen who have furnished them at my request. The list is now exhausted, and we come upon the list of voluntary papers.

I will now ask my old friend Dr. William H. Carmalt of New Haven, your President-Elect to assume the Chair. (Applause.)

**SOME GENERAL REMARKS CONCERNING ACUTE
CONJUNCTIVITIS, IRITIS AND ACUTE
GLAUCOMA.**

ANTHONY PECK, M.D.,

NORWICH.

I have chosen this subject because these three diseases are so often first seen by the general practitioner; because mistakes in diagnosis are so disastrous, and because the treatment of iritis and glaucoma is so diametrically opposite.

The most common errors of diagnosis are to regard iritis as conjunctivitis, and glaucoma as iritis.

The first error, while serious, may not cause blindness but the second error is almost sure to be disastrous. The reason is this: the fluids within the eye find their principal exit through a canal at the periphery of the iris. If, from disease, or the use of mydriatics, the pupil dilates, the iris settles back towards this canal and closes or diminishes its caliber.

The result is increased tension of the eye-ball in proportion to the obstruction to the outward flow of the fluids of the eye. If the tension is great enough, pressure on the optic nerve speedily causes atrophy and blindness.

Dr. Charles A. Oliver, in a recent number of the *Annals of Ophthalmology*, says: "As a broad rule, it may be stated that all mydriatics increase intra-ocular pressure mechanically by crowding the iris-tissue into the angle of the anterior chamber.

Noyes says, in his work on the eye, "Even cocaine has been known to set up, when used alone, an acute inflammatory attack" (of glaucoma).

Last year at the meeting of the American Ophthalmological Society, Dr. Ring of New Haven reported a case

of glaucoma precipitated by the use of euphthalmine, a mydriatic generally supposed to be pretty safe.

In the report he quotes from Dr. Jackson thus: "The claim that euphthalmine is free from danger of causing glaucoma should be met with skepticism. The claim has been put forward for duboisin and homatropin, and has for them proven false. No one has yet reported a glaucomatous attack, following the use of euphthalmine; but the report will undoubtedly come later, if the drug is widely used." Dr. Jackson's prophecy was fulfilled.

Mydriatics, then, must be religiously excluded in dealing with glaucoma; per contra, anything which tends to contract the pupil, as eserine, may pull the iris away from the canal of exit and so relieve tension.

If the proper treatment for glaucoma be mistakenly applied to iritis, the probable result will be that the pain and severity of the inflammation will be increased and the iris will become attached to the lens, so interfering with its action. The seriousness of this accident is in proportion to the extent of the attachment; it prevents the normal action of the iris and may leave an irritable condition of the eye.

If either an acute glaucoma or an iritis be regarded as a conjunctivitis neither myotics nor mydriatics will be used at the time when they might do the most good.

Finally, if acute conjunctivitis be treated as glaucoma or iritis, perhaps no great harm may result; but appropriate treatment could then hardly be expected.

ACUTE CONJUNCTIVITIS, OR "PINK EYE."

In considering this disease, I shall omit mention of gonorrheal conjunctivitis: all forms of conjunctivitis due to diseases of the lids; to burns or injuries; also phlyctenular, membranous, or diphtheritic conjunctivitis.

With the onset of pink-eye, there is nothing more than a slight itching for thirty-six to forty-eight hours after infection; then a little sticking together of the lids is noticed and some burning of the lids and discomfort

on moving the eyes. The pupil and tension are normal. Vision is not affected, except as the photophobia and lachrymation interfere with it. The disease reaches its height in three or four days, when the discharge is yellowish and copious. In severe cases, hemorrhage is so constant that it has been called "hemorrhagic conjunctivitis."

The whole eye is intensely red. The conjunctival vessels are large and the finger may slide them about over the sclerotic and by pressure empty them for a second.

The most pathognomonic symptom is, the sticking of the lids in the morning. Practically this is never present in iritis or glaucoma.

A severe pink-eye might, at first glance, easily be mistaken for a gonorrheal conjunctivitis, so great is the swelling and so copious the discharge.

The disease is very contagious; the contagion passing some assert, through the air.

The fact that the disease has gone through a family will often settle the question of diagnosis.

IRITIS.

This disease is apt to begin rather suddenly, especially if due to syphilis. At first there is pain in the eye; soon it radiates along the branches of the fifth nerve. Tender points are found at the supro-orbital notch, at the vertex and at the upper margin of the cornea.

For some unknown reason the pain is most severe at night and toward morning.

The tension is generally normal though it may be increased.

Impairment of vision, often extreme, soon occurs, with great photophobia. If the inflammation be at all severe, the whole eye will be intensely red, with a fringe of fine vessels radiating from the cornea. The optic disc is normal.

The pupil is small and immovable, due to the swelling of the iris, and the iris itself looks dull and discolored.

As the disease progresses, the aqueous becomes turbid and there may be a crescent-shaped deposit at the bottom of the anterior chamber.

By oblique illumination, a slight deposit may sometimes be seen on the posterior surface of the cornea, though this is more likely to be present if the ciliary bodies are involved.

If adhesions are present and atropia be used, the pupil assumes a clover-leaf shape. If the whole circumference of the pupil is adherent to the lens, atropia affects neither the size nor the shape of the pupil.

The history of the patient should never be neglected. In children one will often find pegged and notched teeth and in adults history of sore throat, falling hair, etc.

One writer has said that of ten cases of iritis, six are due to syphilis, hereditary or acquired; three are due to rheumatic diathesis, and one to traumatism, or to unknown causes. The bearing of the history on the treatment is evident.

ACUTE GLAUCOMA.

The liability to this disease increases with age. Priestly Smith says that the chances of an attack at sixty-five are twice as great as at forty-five. It is rare under thirty, and is most frequent between sixty and seventy. It is also more frequent in females than in males. Often it follows business troubles, anxiety and grief; hence it is frequently seen in widows. Pain, cold, fatigue, and the gouty diathesis predispose to it.

The onset is sudden and is apt to begin in the night. Patients often think that they see flashes of light. There is severe aching pain in the face, and the eye quickly becomes red. Occasionally there are malaise and vomiting, causing the trouble to be regarded as a "bilious attack."

Within a few hours there are chemosis and tumefaction of the lids.

The tension of the eye rises, and at the same time vision

fails rapidly; so rapidly that the sufferer may become blind in a short time.

Testing the tension by palpation increases the pain, which is usually agonizing.

The increased tension stretches the cornea so that it becomes hazy and less sensitive than normal.

The pupil is larger than its fellow, and immovable. The iris is discolored and the anterior chamber shallow.

If the optic nerve is visible, it will be found cupped.

After several weeks the congestion may subside, the pain become less, and perhaps a little vision may return.

Occasionally an acute attack merges into a chronic condition, with total loss of vision.

Three short histories will illustrate the dangers of mydriatics.

1. A few days ago I had occasion to instil a weak solution of atropia in the eye of a middle-aged man. The next day the tension was decidedly increased; there was severe aching pain and the vision was considerably affected. Eserin, and hot water restored the vision in twenty-four hours.

2. Two months ago I was called to see a young man who had spattered acid into his eye. As the smarting was intense, I used cocaine. On leaving him I directed him to use the cocaine once in two hours. About two hours later word came by telephone that he was in agony and that the cocaine relieved him not more than ten minutes. No grass grew under my feet for the next twenty minutes, and on reaching him, I found, as I expected to, greatly increased tension and vision reduced to the counting of figures at two feet. A good dose of morphia was given (which tended to contract the pupil), hot water was applied assiduously and eserine dropped into the eye, as soon as it could be procured. In an hour he was comparatively comfortable, but it was three days before vision was normal and the pupil as small as its fellow, although eserine was used daily.

3. Since writing the above an elderly lady called at my office. She stated that she was not aware of ever having had any disease of the eyes, until she was given some eye-drops, by a well and favorably known physician of a neighboring state. The use of the drops was followed in less than ten hours by dreadful pain. The physician sent her to a hospital, and towards night, performed iridectomy on one eye, and on the other eye, the next morning. The result was, loss of vision in one eye and impairment of vision in the other.

A number of similar experiences, not always so disastrous, occurring in the practice of the most careful and experienced physicians, can be found scattered through ophthalmological literature.

I am not advising that anyone discontinue the use of mydriatics. One of the writers quoted above, says: "In the treatment of the iris and ciliary body, they are absolute necessities;" but I do ask that every one remember that while a mydriatic is an invaluable weapon in overcoming ocular diseases, it is also a two-edged weapon and may cut both ways.

The subject may be condensed into a nutshell, thus:

	ACUTE CON- JUNCTIVITIS.	IRITIS	ACUTE GLAUCOMA.
Constitutional symptoms	None	None, ex- cept in se- verest cases.	Often ma- laise and vomiting.
Discharge	Muco Purulent	Tears only; Profuse.	Little, if any.
Pupil	Normal. Black reflex.	Smaller than normal; Grayish re- flex when aqueous is turbid. Deep ante- rior chamber.	Larger than normal. Shallow an- terior cham- ber.

Tension	{ Normal.	Generally normal.	Always increased.
Blood-vessels	{ Enlarged conjunctival vessels	Fringe of fine vessels around the cornea	Enlarged sclerotic vessels.
Optic disc	{ Normal.	Normal	Cupped disc, if media are clear enough to permit examination
Pain	{ None.	May be little pain or much pain; especially at night.	Constant aching pain, always severe, often agonizing.
Vision	{ Not Affected.	Affected as soon as the aqueous is turbid	Greatly diminished from the first. Rainbow colors and flashes of light.
Duration	{ One to two weeks.	Rarely less than four weeks, often eight to twelve weeks	Several months before all redness disappears.
Treatment	{ Cleanliness. Astringents. Some Preparation of Silver.	Atropin. Hot fomentations, frequently anti-syphilitic or anti-rheumatic remedies.	Opiates. Eserine. Hot fomentations. Soda Salicylate, in rheumatic cases. Iridectomy as quickly as possible.

The President: Discussion of this paper on Conjunctivitis is now in order.

Dr. George J. Holmes (of New Britain). Mr. President, there is one form of conjunctivitis which Dr. Peck did

not mention, and I presume it is incidental to certain localities. In New Britain we find Trachomatous-conjunctivitis among a class of immigrants who came there, mostly in Italian and Polish children. There is quite a large quantity of this trouble among that class of people. I have recently had a case where a young man had an abrasion of the cornea, and I found that he had also a trachomatous condition of the lid. The poison immediately infected the cornea and he has a resulting opacity with leucoma in the center of the field of vision. Trachoma should be recognized early, and I think this society should take more cognizance of it throughout the state. There is quite a good deal of trachoma among school children, especially among the classes mentioned and it is highly contagious, and means, as you know, much damage to the eyes of school children if not properly treated and sometimes blindness.

A NOTE ON THE PREVENTION OF TYPHOID FEVER.

WILLIAM G. DAGGETT, M.D.,

NEW HAVEN.

The annual reports, year after year, of thousands of cases of a serious preventable disease, involving a large mortality and a huge economic loss, strongly suggest the imperfection or insufficiency of our prophylactic measures. This applies to typhoid fever in Connecticut. Twenty-five thousand cases, twenty-five hundred deaths, and an economic loss of twenty-five millions of dollars is the record for the decade ending with 1902.

Moreover, of the usual diseases, none, with the exception of tuberculosis, can compare with typhoid fever in importance. This is true not only because of its mortality, but also because it attacks by preference strong and robust individuals between the ages of eighteen and forty, and because it involves a disability measured by months rather than by weeks or days. Furthermore, we can no longer plead ignorance of its cause and methods of dissemination. These are well known to physicians, and the lessons taught by repeated epidemics are familiar to every tyro in the study of medicine. Eleven epidemics in our own state in the decade mentioned point the moral to us. What may be termed our working knowledge of the disease is ample, and may be briefly summarized as follows.

It is caused by the *bacillus typhosus*, an organism which exists in large numbers in the stools and urine of patients, and which may persist for months, or even years, in the urine after the patient is discharged as cured. It may also be harbored by healthy individuals.

Patients receive the infection by the mouth in water, milk, or food. Water is infected in wells or streams from the dejecta of some case; milk by the use of polluted water in dilution, or in washing the containers; oysters by being placed near the mouths of sewers to fatten; food, cooked or raw, by water, dust, or flies. Every case is potentially a focus from which hundreds of others may develop.

Further, as has been shown by Dr. John S. Fulton, while the disease is ubiquitous, it is essentially a rural disease, and its propagation "is in general from the country to the town, rather than from town to country." (Journal Am. Med. Ass'n., Jan. 9, 1904.)

To combat these conditions we establish filtration plants for the water-supplies of large centers of population; we encourage the domestic filtration of water; and in times of manifest danger advise the boiling of water used for drinking purposes. Our health officers search for the foci of epidemics and effectively isolate them. We preach and practice the disinfection of the excreta of every recognized case, and we disinfect too the bedding, clothing and utensils used by the patient. These measures are absolutely necessary and must be carried out with the utmost care.

But our system is seriously defective in that, except as regards the filtration of water, it deals with cases only after they have been diagnosed, and until they are thought to be powerless for harm. We should also consider these cases before precautions are commenced and after they have been discontinued; and in addition the very large number of unrecognized cases. To strike at the root of the matter we should not wait until sickness appears, but should anticipate the occurrence of infection. This can be done only by *comprehensive rural sanitation*. With the state thickly settled, with milk and vegetables brought from every direction to the towns and cities, and with the larger centers of population

reaching out farther and farther for their water supplies, we must now look upon even the remote rural inhabitant as a neighbor, and take a lively interest in his well, his yard, and in the brook that traverses his farm. By waging an effective warfare at this hitherto neglected point we can prevent the pollution of water and milk, and the conveyance of infection by dust and flies. The rural privy is the original plague spot, although casual deposits of infectious excreta may at times play a part. The location of the privy is usually based solely on considerations of convenience of access and a moderate degree of privacy, little or no thought being given to the direction of the flow of the ground water. The building is seldom cleaned, rarely screened, and the vault is never disinfected. It should be very carefully located, thoroughly screened to keep flies away, and it should be *disinfected daily whether or not there is sickness on the premises*.

It is in truth a herculean task to accomplish a reform involving so much perplexing detail, but the task is insignificant when compared with the evil which its accomplishment would in a large measure avert. It must be done sooner or later, and when it has been put into effective operation the wonder will be that it was not sooner undertaken. Consider for a moment the trouble and expense which would readily be incurred by the state to prevent an equal financial loss to any single crop, or in any species of domestic animals. Consider the enormous amounts of money yearly expended by several states on levees for the protection of low lands. Surely a single human life is worth more than a flock of sheep, a bushel of wheat, or an acre of land.

The first step in bringing about the reforms suggested should be the formulation of the best practicable methods of keeping privy vaults in a sanitary condition. The next, the appointment of a number of civil engineers as a permanent force of State Sanitary Inspectors whose duty should be to make a complete sanitary survey of the

state, with power to condemn improperly located or improperly managed privies. They should also instruct the people as to the best use of screens, the care of manure heaps to prevent the breeding of flies, and the general sanitary management of stables and yards. They should make frequent rounds of their respective districts, and should report at stated times in writing to their Superintendent. The whole matter might well be placed under the control and direction of the State Board of Health.

If Connecticut will, as she can, demonstrate this proposition, and materially reduce the incidence and mortality of typhoid fever, other states will follow her lead, and a vast amount of good will result.

ADDENDA.

A. 2227 deaths from typhoid fever were reported in the decade ending with 1902 (Rep. Conn., S. B. of H., 1903). Allowing a mortality of ten per cent. we have a morbidity of 22270. Making due allowance for unrecognized cases we have a morbidity of 25000, and a mortality of 2500.

B. John M. Holcombe, Vice Pres., of the Phoenix Mutual Life Insurance Company (Yale Alumni Weekly, April 13, 1904) capitalizes the life of a laborer at \$7546.50. Bearing in mind that the loss in many cases, from an economic standpoint, is of persons of much greater earning power than a laborer, it is safe to capitalize the average victim of this disease at \$8000.00. This gives a loss in the decade of \$20,000,000.00. Assuming that each of the 25000 ill is at an expense of \$200.00 for loss of time, medical attendance and nursing, we have an additional amount of \$5,000,000.00, making the grand total \$25,000,000.00.

C. Below is a list of the usual diseases, with their average ten year mortality (Report Conn., S. B. of H., 1903).

THE PREVENTION OF TYPHOID FEVER.—DAGGETT. 343

Phthisis,	1356
Pneumonia,	1268
Infantile Diarrhea,	953
Diphtheria,	352
La Grippe,	346
Typhoid Fever,	227
Dysentery,	155
Pertussis,	128
Scarlet Fever,	90
Measles,	87

D. Epidemics of typhoid fever in Connecticut 1893-1902.

Date.	Town.	No. of Cases.	Cause.
1894	Middletown,	23	Oysters.
1894	Stafford,	21	Water.
1895	Stamford,	386	Milk.
1896	New Haven,	62	Milk.
1899	South Manchester,	28	Unknown.
1900	Forestville,	48	Water.
1901	New Haven,	479	Water.
1901	Middletown,	15	Unknown.
1901	Ridgefield,	18	Water.
1901	Manchester,	84	Unknown.
1902	Bristol,	84	Milk.

E. A table showing the decrease in mortality from typhoid fever in Connecticut by decades, per 100,000, of population. (Report Conn., S. B. of H., 1903).

1873-1882	average mortality	54.
1883-1892	average mortality	36.8
1893-1902	average mortality	25.2

Following the presentation of this paper, the Society adopted the following resolution:—

That the Connecticut Medical Society endorses the general proposition which is now advanced regarding Rural Sanitation, and refers it to the State Board of Health.

CLUB FOOT.

L. M. ALLEN. M.D.,

SOUTH NORWALK.

So much has been written and said recently about deformities, especially congenital, and infant deformities, that the interest of the laity has been aroused, and that of the profession awakened, and it is well that it should be so, for who is more deserving of our interest and best efforts than the infant afflicted with a deformity that acts as a shackle not only through childhood but through life, and if we have it in our power to relieve or improve the condition, is there anything that gives us more satisfaction and pleasure?

In a paper of this kind, read before such an assembly as this much can be left out that would be essential for a complete study of the subject, and only the more important points touched upon that naturally lead up to the subject of treatment.

For the purpose of this paper we will consider the congenital and acquired club-foot, and of the acquired, only those due to infantile spinal paralysis.

We will touch briefly on the etiology, progress and treatment.

The following facts appear from an analysis of 2386 cases of club-foot under treatment at the hospital for the Ruptured and Crippled.

Club-foot is among the most common of congenital deformities; congenital club-foot is less frequent than non-congenital.

Males are more often affected than females; Equinovarus the most frequent variety constituting about three quarters of all cases. Both feet more often affected than

one. Right foot more often affected than left. Non-congenital club-foot most frequently due to paralysis.

The paralytic form is usually due to poliomyelitis, and one foot is more often affected than both feet.

Males and females are about equally affected in non-congenital club-foot.

Equino-varus, equinus and calcaneus are the most common forms of paralytic club-foot.

When both feet are affected the deformity is usually the same in both feet.

Equinus and calcaneus are rare as congenital, but common as paralytic.

Ordinarily the difference between the congenital, and the acquired form can be clearly established, and should be as it influences both prognosis and treatment.

In congenital club-foot, of which equino-varus is the most common variety, both sides are generally affected, and while the muscles are in an abnormal position, and disabled by their lengthened tendons, they are not paralyzed: whereas in the acquired form the muscles are always paralyzed to a greater or less degree.

It is natural for the feet of infants to turn in, and the fact that they turn in a little more than natural, or are kept turned in more persistently may be overlooked, but a careful examination would reveal the true condition.

Treatment should begin at once, even from the day of birth, but in the great majority of cases the importance of treatment and the necessity for it is only appreciated when the child begins to walk, at the age of ten or twelve months or even later, whereas if the abnormal position is recognized, and the fault corrected, the muscles will resume their function, and the prognosis as regards an ultimate good result, or even a complete cure is good, as congenital equino-varus, and equinus is always amenable to treatment, and relapses are generally due to carelessness.

Acquired club-foot of which the most common variety

is talipes equinus, is due to infantile spinal paralysis, and as the paralysis of one set of muscles is more or less complete, and as this is often permanent, the best that can be done is to improve the function, and appearance of the part.

For a time after paralysis has occurred the foot can be brought to the normal position, but the loss of power in the anterior muscles of the leg allowing the opposed muscles of the calf to draw the heel upward, the healthy muscles and tendo-Achillis become permanently shortened, and the deformity is produced.

In old cases the plantar fascia and tendon of the toes will also be found to be shortened, and the resulting deformity becomes one of extreme degree. The most frequent cause of the acquired form is poliomyelitis Anterior. As a result of this disease we have a more or less complete paralysis of the gastrocnemius which gives us calcaneus, of the anterior tibials which gives us equinus, of the anterior tibials and peroneals, which gives us Equino-varus, of the interossei which gives us cavus, and of the posterior tibials, and of the anterior tibials which gives us valgus and equino valgus.

Poliomyelitis, infantile spinal paralysis, Myelitis of the anterior horns, essential paralysis of children, and West's morning paralysis are some of the names that have been given to this condition by different writers, and at different periods, the condition being purely a motor paralysis of flaccid type, the paralysis being followed by rapidly developing atrophy, with degenerative electrical reaction in the affected muscles.

Infantile spinal paralysis is not ushered in by any marked prodromata, the disease begins abruptly with a temperature of 100 degrees to 103 degrees, sometimes higher with older children, sometimes there is vomiting and diarrhea, sometimes pain in the back and limbs, and in some instances there may be slight headache. In about one fourth of all cases the disease is ushered in

with convulsions, the symptoms varying in intensity with the temperature.

The full significance of these symptoms is rarely understood until after they have subsided, and the flaccid muscles are discovered with their more or less complete loss of power, which may at first affect all the extremities, and even the trunk muscles. This general paralysis usually clears away within a week or two leaving a residual paralysis of one or more muscles, or group of muscles, invariably of associated function. Sometimes the child may be put to bed in apparent good health, sleep quietly throughout the night and the next morning appear bright and as well as usual, but with one limb paralyzed. Such cases were formerly known as West's morning paralysis.

Within two or three weeks, sometimes earlier, the paralyzed muscles begin to atrophy, and have a bluish cyanosed appearance, with a distinctly cold feeling to the touch. Sometimes they atrophy very rapidly. There is no sensory disturbance in infantile spinal paralysis or if any at all very slight.

Soon after atrophy a change in the response of the affected muscles to both the faradic and galvanic currents will be observed. To the faradic current response becomes more and more diminished until lost in severe cases. To the galvanic current the nerves involved show more or less complete reaction of degeneration. According to Gessler the increased irritability of the muscles to the galvanic current is due to irritative processes within the sarcolemma.

The rapid loss of faradic irritability as well as the change in the normal formula of contraction is due to chemical changes in the muscle.

In making the electrical tests comparison should be made with the corresponding sound muscles of the unaffected side. In this way minor changes can also be determined.

Within a few months various deformities may develop from unopposed muscular antagonism and contraction.

Talipes equinus, and varus, and many other deformities are possible. Sometimes an arrest of development occurs, and after a few years, one limb becomes shorter than the other, or one foot or hand is smaller. In making the diagnosis the history of the febrile stage is of importance in excluding cerebral meningitis, and the cerebral palsies of childhood. In the latter affection epilepsy is often developed, and mental impairment in some degree is almost always present, whereas in infantile spinal paralysis the mind is never impaired.

The type of paralysis in the two is exactly opposite. In infantile spinal paralysis monoplegia is the rule as regards distribution, the muscles affected being functionally associated. The paralysis is of a flaccid type, the muscles atrophy and the reflexes are lost.

In cerebral palsies, the paralysis is spastic, with exaggerated reflexes. The muscles do not atrophy, although arrest of development may occur. The paralysis is of muscles anatomically associated, and the distribution is generally hemiplegic, monoplegia being rare, and there are no electrical changes characteristic of cerebral palsies. The history and progress of the case serves to distinguish poliomyelitis anterior acuta from the pure muscular atrophies.

More than one half of all acute cases occur within the first three years of life, and more than ninety per cent. within the first ten years.

Among adults it is comparatively rare in the female, but among children the sexes seem equally susceptible.

The disease seems more common in centers of dense population than in the rural districts and more common in summer than in winter, especially during prolonged periods of excessive heat.

Epidemics of poliomyelitis have been reported, and it

is believed to be of an infectious or infectio-toxic nature from the fact that it has been produced in animals by the injection of different bacteria and their toxins. No specific Microorganism has as yet been demonstrated however. All classes and conditions seem equally susceptible, and the disease shows no racial proclivities though the negro is comparatively exempt.

The lesion in infantile spinal paralysis is an atrophic destruction more or less complete of the larger ganglion cells of the anterior horns, limited to the gray matter, produced it is believed by a microorganism introduced through the anterior spinal arteries. This establishment of the disease is as yet theoretical and does not hold in all cases, as some are due to trauma, exposure to cold, and excessive or violent exertion. The part of the cord most frequently affected is the mid-cervical, and lower dorsal: the disease first attacking the cells, the anterior nerve roots being affected secondly with degenerative changes.

The severity of the constitutional symptoms and temperature are the only guides to assist us in prognosis as to the degree and extent of the final paralysis, and they are not positive guides.

In all cases there will be some permanent paralysis, but it may be several months before the limit of the paralysis can be determined.

The prognosis depends largely upon the care with which instructions are followed by the parents. The treatment should begin a few days after birth and be practiced with faithful persistency by the mother or nurse who can be taught to manipulate the foot, the manipulation being a stretching of the muscles and ligaments, which should be practiced several times daily.

The manipulation of talipes equino-varus which is the most common form of congenital club-foot may be given as an example. The leg is grasped by one hand close to the ankle, the foot is grasped with the other hand and

rotated outward so as to first overcome the varus, and while the foot is held in this position it is flexed on the leg so as to stretch the tendo achillis.

This should be done several times at a sitting and repeated several times daily. In very young infants this should be the only treatment, and much can be done by intelligent handling, though the deformity be of the highest degree.

Manual treatment may continue up to the third or fourth month and in no way interfere with any subsequent treatment that may be found necessary.

The other methods of treatment of congenital club-foot will not be touched upon in this paper except to mention some of them.

1. Manual force under an anesthetic whereby the deformity is reduced at once, and the foot then put in plaster has recently attracted much attention. 2. The employment of mechanical force under an anesthetic, such as the tarsoclast of Bradford, the Thomas wrench, the Phelps machine. 3. The subcutaneous tenotomy and myotomy. 4. The open section with division of all soft parts. 5. The bone operations on the foot such as the removal of the astragalus, cuneiform osteotomy, and the linear osteotomies.

Acquired club-foot due to poliomyelitis when complete paralysis has not occurred should be a thing of the past and probably is except in rare cases, or when it is due to neglect. It can only be caused by shortening of the unopposed muscles and tendons, and this unopposed condition can be very effectually met by mechanical appliances and the shortened condition remedied by operation.

Osler has the courage to say that he has never seen the slightest benefit from the use of drugs or electricity in poliomyelitis. Other writers advise the use of various drugs and both the faradic and galvanic currents. The discussion of that part of the subject, however, is not the object of this paper.

Regarding mechanical appliances, and operations, suffice it to say that if there is not complete paralysis, and if taken early, marked deformity may be prevented in all cases by the institution of proper treatment, and a cure is possible in many.

We do, however, see cases of acquired club-foot in adults due in almost all cases to neglect in the early stages, and during the years of growth and development of the bones and muscles, and sometimes our advice is sought by the adults so afflicted.

Now the question is what can be done to improve the condition of disability caused by the distortion of these feet? and quite as important; what can be done to improve the appearance and render the disfigurement less conspicuous? And the answer is much, very much can be done.

The adult with talipes equinus who has been compelled all his life to walk on his toes with his heel elevated several inches from the ground, and the tarsus in a straight line with the leg, instead of nearly right angle with it, can in a few weeks be made to stand flat-footed on the ground, with his leg straightened out like its fellow, and his heel pounding the earth when he walks just as proud as its fellow.

This of course can only be done by the combined use of operative procedure, manual force, and mechanical appliances.

As talipes equinus is the most common form of acquired club-foot, we will select it as an example, and give the treatment of an exaggerated case.

Mr. J., age forty-five, gives the history of an attack of infantile spinal paralysis at the age of eighteen months.

The first indication of the disease was a paralysis of the right side, a very complete hemiplegia involving not only the arm and leg, but also the trunk muscles. In a few months the general paralysis began to improve leaving some residual paralysis of both the arm and leg.

He had to learn to walk the second time and remembers picking things up with his left hand and then taking them in his right hand, being unable to pick them up with his right.

This residual paralysis gradually improved until the hand recovered completely and the leg to such a degree that he learned to skate. At the age of thirteen it was discovered that the heel of the right foot was slightly elevated. This was corrected by adding an extra list to the heel of that shoe, and soon another was added, and then another, until the heel of the shoe was several inches high. At the age of seventeen a plaster cast of the foot was made which shows the tendo Achillis drawn tense, the plantar fascia contracted, and the toes doubled up and their flexor tendons tense and rigid. All which shows great progress in the deformity.

At the age of twenty a photograph of the foot was taken.

Just before the operation, the foot was photographed, and when examined closely will be found most interesting.

The distal end of the metatarsal bones are in a direct line with the axis of the long bones of the leg, and rigidly fixed in that position, walking was painful, and for years Mr. J. suffered with every step he took. In fact the suffering was so great that he contemplated having the foot amputated and substituting an artificial foot.

To bring this foot into the normal position it was necessary to remove the astragalus, divide the tendo Achillis, which was done by subcutaneous section, and sever the plantar fascia.

The foot was then brought into the normal position, the wound covered with protective, and gauze well padded with cotton, and put up in plaster.

The plaster remained on two weeks; it was then removed, the foot examined, found to be doing well, and put up in plaster again. This time the plaster was left

on three weeks, when it was removed and starch substituted.

The wounds healed satisfactorily. In a few weeks the patient began to walk, at first with a crutch, then with a cane, and can now walk several miles at a good rapid gait.

Mr. J., impresses me now as being one of the most cheerful of men. Formerly his facial expression was one of pain with every step he took. The ankle joint is quite flexible, and keeps improving.

It is now two years and a half since the operation was performed, and I believe most of you gentlemen will appreciate the opportunity to examine the foot and judge the result of the operation for yourselves, as it is not often we have the opportunity to see the result of an operation of this kind, performed on a man at the age of forty-three.

REPORT OF A CASE OF COXA VARA.

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Like many other pathological conditions in medicine and surgery, coxa vara has always existed, but until fairly recently it has been classed under the general heading "hip-disease."

Now we can put it in a class by itself, give a reasonable theory of causation, and, best of all, can either absolutely cure the condition or else greatly improve it.

Bow-legs and knock-knees are familiar to us all and coxa vara is an allied condition with the seat of the trouble in the neck of the femur. The former are seen in infancy and childhood while the latter although sometimes seen in childhood is regularly a condition of puberty, or about that age.

While congenital hip-dislocation is more frequent in girls, coxa vara is much more common among boys. In a moderate number of the cases there is a history of rickets but there are more where there are no evidences thereof.

The ordinary anatomical change in coxa vara is a bending of the neck of the femur, which causes a shortening of the leg on that side. It may be in one or both hips, but usually only in one. Microscopical examination of sections of bone from the affected area shows no pathological changes.

The following case is reported because the results of treatment in such conditions are so favorable, while without proper treatment the patient may be a helpless cripple so far as his leg or legs are concerned.

J. G., seventeen years old, born in Russia, farmer,

family history good, previous personal history excellent.

For three years he has not been able to walk well and the trouble has been increasing. Two years ago he fell off a load of hay and might possibly have been somewhat injured, but was not laid up in bed then. When farm work was light he did fairly well, but when work was heavy, he got about with great difficulty. Finally he was brought to the Hartford Hospital.

He appears unusually large and muscular for his age. Above his pelvis his body is normal in every way. He can stand erect, but any movement in the hip-joints causes him pain and he has practically no motion therein. The right leg is three quarters of an inch shorter than the left. The right great trochanter is about half an inch above Nelaton's line; the left great trochanter is about on this line. Both legs are much everted and adducted so that the feet can easily be made to be on their outer sides when he is lying in bed.

The rigidity in the hips, was very much like an acute tubercular hip.

To clear up the diagnosis he was etherized and both hip-joints moved freely although somewhat limited in abduction and internal rotation. Muscular spasm evidently caused the pain when the joints were moved. After several weeks rest in bed his condition remained the same. No motion in the hip-joints. An X-ray photograph of the pelvis was a failure as he was large and muscular.

A linear osteotomy below the right lesser trochanter was done and the leg put up in a plaster spica in marked abduction correcting at the same time the eversion of the foot.

January Third, 1903, the cast was removed and he went home two weeks later using a cane. The long rest in bed had caused the muscular spasm in both hips to disappear and he could easily move both joints.

March Fifteenth, 1904. Patient seen again for the

first time since he left the hospital. He has remained well. Can do the ordinary farm work and has had no more trouble with his hip-joints. He still limps some, but he considers the leg which was operated on his best leg.

He still has a moderate condition of coxa vara in his left hip, but it will not be necessary to do an osteotomy on that side unless he has acute symptoms.

A STUDY OF ECTOPIC PREGNANCY IN THE FIRST THREE MONTHS.

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Ectopic Pregnancy (meaning misplaced pregnancy) or Extra-Uterine Pregnancy, so-called, includes all cases of pregnancy where the ovum, after becoming fertilized, develops outside of the cavity of the Uterus. This obviously does not include a pregnancy in one horn of a Uterus Bicornis, though such a pregnancy is in a certain sense misplaced or "Ectopic," yet, however, it is still in the Uterine cavity. Owing to peculiar if not faulty development, the Uterine cavity is misplaced, but not the pregnancy.

Removal of a fetus from the mother per abdomen was known to the very ancient peoples. It was accomplished by the Jews in very early times, and the Greeks, too, were familiar with it. It has been taken for granted that these early procedures were in cases where the fetus was in the mother's womb. Of these early operations, one occurring in 1500, performed by the sowgelder of Seigeheusen, who removed a child from his wife's belly is held by Simons, a surgeon to the Manchester Infirmary, in a monograph published in 1792, as being a case of ectopic pregnancy. Be this as it may, we know that in the year 1540, Christopher Bain removed from a woman fetal parts and maternal structures, and that this was a case of ectopic pregnancy. From the history of the case and operation, we are given to understand that in this patient there was a sloughing mass which required merely a puncture to empty it of its contents, which were as above stated.

In 1591, Noierus operated for ectopic pregnancy; in 1594 Primerose operated upon a patient of Noierus, who had again become pregnant. This operation of Primerose was probably the first definitely planned and systematically carried out, surgical interference in ectopic pregnancy.

Again in 1694 Cyprian reports cases of ectopic pregnancy. Simon in 1753 (*Mem. de L'Acad. de Chir. Paris*, Vol. 11, P. 308) mentioned that one indication for celiotomy was when the fetus was in the tube or abdominal cavity.

The first operation in America for Extra-Uterine Pregnancy was accomplished by Dr. Bard, of New York, in 1764.

There seems no doubt that all these operations were done in order that "a fetus which was outside the Uterine cavity might be taken from the mother," and probably we are safe in assuming that in all these cases the pregnancy had advanced well to term with death of the fetus and more or less sloughing of the sac and contents, before surgical interference was brought to issue. The fact that not till 1749 do we find any record of an operation being undertaken for hemorrhage due to ectopic gestation, bears out our assumption. In this year a Dr. Harber, an American surgeon, first suggested that operation should be done for rupture of the sac of extra-uterine pregnancy. However, this suggestion received little if any attention. Dr. Stephen Rogers, of New York, in 1866-1867 (*Med. Record* 1867, Vol. 2, P. 22) again brought before the profession the feasibility of celiotomy for rupture of the sac of ectopic pregnancy; and urged such procedure. M. Moreau, an accoucheur of Paris, in 1841 urged operation for rupture of the sac during spurious labor, but condemned it for early rupture.

It will be observed from the foregoing that up to the year 1850 little was done for this condition other than

opening what was practically an abscess and liberating the sloughing contents thereof.

In the year 1850, when the era of ovariectomy descended upon the medical world, history brings to light the fact that, when once the abdomen was attacked and the ovary dealt with by the pioneers of Abdominal Surgery, then imbued with the brilliancy of their discovery, and with the future promising rewards still more brilliant, minds of the interested awoke and operation for rupture of an ectopic gestation sac was first suggested and shortly carried out.

Upon the brow of that distinguished English surgeon, Lawson Tait, should rest the laurels of success in the surgical treatment of ectopic pregnancy. By almost a miraculous series of circumstances, this brilliant man in the year 1887 reported thirty-five operations for rupture of a gestation sac in the early months, with the marvelous record of thirty-three recoveries. Tait thus taught the profession not only how to operate and when, but placed the operation for rupture of an ectopic gestation sac among the first surgical procedures as a life saving measure. And with Tait as a pioneer in this great achievement, this operation is now one which gives us most excellent results, saves many lives, and flashes with a brilliancy ever increasing, across the horizon of Abdominal Surgery.

ETIOLOGY.

Ectopic Pregnancy can occur at any time in the generative activity of the woman. It is found in the young and in those well advanced towards the climacteric. It may occur as the first pregnancy, or come after a number of normal pregnancies. It has been said to appear after a period of sterility existed some time, and history seems to still favor this idea.

There may be a double ectopic pregnancy, or an ectopic may occur in conjunction with a normal pregnancy. It

has shown some disposition to recur in the same individual.

Little is known definitely, though much speculation has taken place as to the cause of causes of ectopic gestation. I think that it may be safely stated that the Etiological factor is far from a correct and definite solution.

Obviously so many conditions, both Physiological, Anatomical and Pathological necessarily must be considered, and, too, such vast endless theories present themselves, that not only are one's efforts balked, but even increased in obscurity, as along these lines investigations take place. If a superficial and rather limited view be taken of the subject, I believe we might be better off in this wise, that is, that in bringing forward certain evidence, we can more accurately appreciate how very meager is our knowledge.

It would be most interesting if our knowledge was positive as to where fertilization of the ovum takes place, whether in the Uterus, the Tube or even upon the surface of the ovary.

Experiments upon animals have proven beyond question that the male element makes its way to the most remote confines of the female generative organs. In animals killed directly after coitus, the male element has been found in abundance in the Fallopian Tubes and also upon the surface of the ovary. The definite knowledge that in certain animals fertilization actually takes place in the ovary, only lends more speculation to the subject. Well authenticated cases of impregnation of the human female by seminal fluid being placed upon the hymen, simply establishes the fact that not only is the spermatozoa hardy and of long life, but also must be endowed with relatively enormous motile power. It is of course questionable whether or not the same travelling into so remote regions can take place in the human female of the male element as we know does take place

in the lower mammalia. However, the assumption that a strong analogy must exist in these physiological processes between the human female and lower animals is at least reasonable.

Assuming then that fertilization of the ovum may occur in any portion of the tube, and accepting the theory of Caste that it must of necessity occur soon after the expulsion of the ovum from the Follicle, because of the extreme delicacy of the ovule, which is rendered useless very quickly not only by the inherent changes taking place in its substance, but also by becoming coated with the albuminous secretion of the tube, I beg to say that if this is so, I am not surprised that ectopic gestation takes place, but I am surprised that it does not take place more frequently.

I cannot believe that the ovum is so perishable, but am inclined more to the belief that the ovum is endowed with great vitality. As a matter of fact, we assume from the knowledge of the ovum of lower animals, that it is well supplied with nourishment, which could be accepted as meaning that a long life was expected, rather than a short one. The fact that the ovum has been known to find its way from the ovary on one side, to the tube on the other, thus travelling quite a surface of peritoneum, and at last becoming fertilized, seems to warrant the belief that it is quite tenacious of life.

The anatomical features of the tube presented to us for consideration would tend to our accepting the view that the spermatozoa are out of place in the tube, and at the same time bring to mind the fact that all seems to obtain for a rapid passage of the ovule into the Uterine cavity. The ciliated epithelium lining the tube, in its continual wave toward the Uterine cavity, would seem to at least handicap, if not prevent any tendency to the entrance of its lumen, by any object, even the spermatozoa. The

muscular contractions of the tube, too, which from anatomical arrangement we assume are toward the Uterus, would also be a very potent measure against entrance of the tube from the uterine cavity.

I tried once to force fluid with a hand-syringe into the tubes from the Uterine cavity, in an apparently healthy uterus but was not successful. I merely mention this as an interesting fact.

On the other hand, if the Uterine cavity is the site where fertilization takes place, I can readily conceive how it is that ectopic gestation takes place, and is so rare an event as compared to normal pregnancy, and can easily believe that owing to pathological changes in the tube, the Spermatozoa might find entrance into the lumen of the tube and continue their journey to any part of its confines.

That a close relation between menstruation and ovulation exists seems to have been established beyond a reasonable doubt.

The rites of the Jewish religion regarding the fourteen days purification would seem to either cast doubt upon the relation between ovulation and menstruation, on the one hand, or else is strong evidence that the ovule is very long lived on the other.

It seems quite clear that during menstruation the Uterus is prepared to receive the products of conception, and that these products of conception, coming into relation in the Uterine Cavity which is the neutral ground, or the receptacle prepared by nature for this reception, knowing that seminal fluid certainly enters the Uterine Cavity on the one hand, and that the tube tends to empty itself of any material on the other, it is not difficult to believe that here in the Uterus we have the site of conception.

So thus it would be logical to consider ectopic gestation a mistake, an abnormality, its occurrence facilitated by

pathological conditions, and suspension of the Physiological activity of the tube.

All of us in active practice can recall women who have become pregnant and gone on to term or not, with more or less trouble involving the tubes, but few of us there are who have found cases of ectopic pregnancy with any frequency.

Concerning Pathological changes I believe that these changes must of necessity be of mild degree. A very severe disease of the tube, especially of an inflammatory nature, pretty positively renders the tube useless, and no doubt the first change is a permanent closure of the ostium abdominale. Hence, a tube so maltreated, would become forever immune to tubal pregnancy. I refer to mild changes such as a permanent loss of the ciliated epithelium, and particularly to a damaging of the muscular coat, by contractions and possibly distention, brought about by mild inflammatory conditions such as catarrhal inflammation, and diminution in the lumen. Thus there could exist a tube more or less distorted, its epithelial lining damaged, its muscular power limited or even destroyed, hence incapable of using the inherent powers it once possessed, and yet still pervious. In other words the activity of the tube is more or less held in abeyance. Physiologically it is inactive; it cannot perfectly either wave its cilia or use its muscular power. We have then a defenceless organ which may receive an ovum, but only passively. "Such a tube could not help onward into the uterus the ovum, nor could it guard against entrance of its lumen. Yet it could no doubt lodge a fertilized ovum and give it the necessary protection in its development."

I want to impress this fact that I firmly believe we might be nearer the truth in dealing with the etiological factor of ectopic gestation if we bear in mind the fact that loss of Physiological activity of the tube is the chief cause, and the pathological changes that may take place only have significance inasmuch as they produce this

inactivity of the tube. To illustrate the power of expulsion possessed by the tube the following case of Mr. Bland Sutton, reported before the Obstetrical Society of London is interesting. "An ovarian cyst was removed and a silk ligature tied about the pedicle. The patient made a perfect recovery, but complained of cramp-like pains which continued for ten months, when, during a menstrual period the patient passed the silk ligature, which was recognized by Mr. Sutton as the one he had placed around the pedicle."

Searching for extra-tubal pathological changes which would interfere with the physiological function of the tube, I would look for peritonitis as a potent factor. By thickening the tubal peritoneum, and by adhesions of tubal surfaces to other structures the activity of the tube could be powerfully interfered with.

Of late quite a bit of attention has been paid to Gonorrhœa as a cause of ectopic gestation, or rather as producing effects which make such an incident possible.

In general Gonorrhœa produces more inflammatory ailments in the female pelvic organs than any other one disease. It seems to me that upon this fact one might consider this disease as a factor inasmuch as it does cause pathological change, but I do not believe there is any reason in laying to any particular disease the cause of ectopic pregnancy.

A summary of the foregoing would bring to light these facts: As regards the site of fertilization nothing positive is known, but we might expect more cases of ectopic gestation if fecundation took place in the tube; that the Uterus would seem the natural site of conception; that the male element has relatively enormous motile powers; that Physiologically the tube acts so as to expel from its lumen any substance gaining entrance thereto, and this expulsive force is towards the uterine cavity; that mild pathological processes would tend to make the tube recipient of ectopic gestation, rather than

severe inflammatory changes; that loss of physiological activity is a strong etiological factor; that peritonitis would be the most potent extra-tubal cause; lastly, by such a superficial view, and considerations of only a few of many things which could be brought to bear on the subject, we must admit that no positive cause has been found, that we are dealing with a question admitting of all degrees of speculation, but obviously, and don't think I exaggerate when I say, impossible of solution.

CLASSIFICATION OF POSSIBLE ETIOLOGICAL FACTORS FOR
ECTOPIC GESTATION.

1. Physiological.

Loss of function of the tube in part or whole.

2. Pathological.

a. Intro-tubal changes.

b. Extra-tubal changes.

1. Loss of muscular
tone.

a. Intro-tubal changes.

2. Loss of ciliated
epithelium.

b. Extra ? tubal changes. 1. Peritonitis.

2. Adhesions.

3. Anatomical.

1. Excessively long tubes.

2. Excessively small tubes in diameter.

3. Both combined.

4. Alteration of tube by operation.

In these days of highest attainment in surgery, a statement as to the relative frequency of ectopic gestation is somewhat misleading, and casts uncertain light upon what the future holds in this line. For since so much has been done by the surgery of to-day, not only in operative measures, but also in diagnostic lines, each

year brings forth more cases of ectopic pregnancy. That this condition exists more frequently than before seems untenable. More cases are found because of better means of recognizing them, and because of increasing interest in this condition.

At the present time the careful practitioner must always keep in mind the fact that ectopic gestation may be met with in his practice any time, and in making a diagnosis of some pelvic disturbance, must consider this condition.

Not many years ago such a condition would not have been considered in the various diagnoses that had to be made, but looked upon as so rare a thing, something veiled in so much mystery, that even the retentive mind brushed it away from its catalogue of knowledge.

Forman of Philadelphia found thirty-five ectopic pregnancies in 3,500 autopsies. Several attempts have been made to estimate the frequency of ectopic pregnancy as compared to normal pregnancy. Such figures are obviously not accurate. No doubt that as time goes on the future will give us more startling figures as to the frequency of this condition than we can now really comprehend.

Once the conditions are fulfilled that are necessary to produce ectopic pregnancy, viz.:—fertilization and development of the ovum outside of the Uterine Cavity, certain definite changes take place in the fetal and maternal structures. It is these changes, which going on for a period of time, produce not only evidence of the trouble, but cause also the grave and serious dangers surrounding the mother.

That all cases of ectopic gestation are primarily tubal, seems to be the most positive of any evidence at hand concerning the pathology of the condition.

It is my purpose in this writing to deal with only the first three months of ectopic pregnancy, for these are cases in which the surgeon is most interested, and the

time, too, when the vast majority of cases are seen, and where operation is not only indicated, but oftentimes demanded as a life-saving measure.

I believe and sincerely trust that in the future no case will ever get beyond a few weeks in development before it is discovered and rectified.

A classification of this condition would here be pertinent and facilitate further study.

Ectopic Gestation.

1. Tubal.
2. Tubo-Uterine. (Interstitial).

As regards Abdominal Pregnancy we know that it is primarily tubal and becomes Abdominal by the process of abortion.

Ovarian Pregnancy, so much discussed, is almost a physical impossibility. I can conceive how it might be possible to have a true ovarian pregnancy, but the pathological changes necessary to alter the parts so as to make such possible would be so severe that no doubt the tube would be immune to any pregnancy. Nevertheless such pregnancy has occurred. Mayo Robson, reported before the London Obstetrical Society, such a variety of gestation. This was the only one in fifty of his cases where he could prove true ovarian pregnancy. The woman was about six weeks pregnant. That severe inflammatory trouble had previously taken place is evidenced by the fact that firm adhesions of the tube to Douglass' pouch had to be dealt with before the tube could be freed.

A classification which does not include Tubo-ovarian variety might at first sight seem incomplete. I do not myself see why there should be any such variety. If by this variety it is assumed that the ovarian tissue takes place in the formation of the sac, such an event is most questionable. And if by the tubo-ovarian variety those cases are included where, simply because of the proxim-

ity of the ovary to the site of pregnancy, that organ becomes part of the wall of the sac, by encroachment of the sac against its surface, or even into its substance by involuting a portion of ovarian tissue, and I do not see why we could not have tubo-ligamentous pregnancy, because the broad ligament might in a similar way become part of the sac wall also. In fact any organ that should ever be found forming a portion of the sac would give us one more variety.

Be this as it may, one fact is certain, and that is that surgically our treatment is the same no matter what part of the free portion of the tube is the seat of the trouble, or which of its surroundings enter into the sac formation, and no doubt the tubal type form by far the greater number of ectopic pregnancies.

From the time the gestation commences various phenomena present which deserve attention.

For the sake of more lucidness we can divide these changes into two classes, viz:—

1. Changes relative to the fetal parts.
2. Changes relative to the maternal parts.
1. Changes relative to the fetal parts.
 - a. Development.
 - b. Death of fetus.
 - c. Changes after death.
2. Changes relative to the maternal parts.
 - a. Changes in the blood-supply.
 - b. Changes in the tube.
 - c. Changes in the Uterus.
 - d. Tubal abortion.
 - e. Rupture of the sac.

As regards the development of the ovum ectopically situated there is no reason to suspect that it in any way differs from the same phenomena when the pregnancy is in the Uterus. However, it is apropos here to say

that development rarely reaches beyond a few months before it becomes interfered with, and true it is that the fetus in ectopic pregnancy is ever in danger of immediate destruction, and few ever escape. The fetal membranes too seem to be developed in the usual way. Chorionic villi develop, and if the pregnancy goes on long enough the placenta also appears. That deportation of the villi occurs seems established beyond question. If in the course of events the ovum should be destroyed before any very marked connection exists between it and the maternal parts, such a condition might be associated with so little disturbance that no evidence is brought to light that an ectopic gestation had commenced, and it would be interesting indeed if we knew whether or not such a thing actually occurs, and if so how often. I can conceive that due to the very inactive endeavors on the maternal structure to support a fertilized ovum that many such may become destroyed in the course of events. But if once the fertilized ovum gains a footing and development reaches to any extent, then the death of the fetus would in all probability be caused by so severe occurrences that medical aid would be sought and no doubt surgical interference be demanded.

CHANGES AFTER DEATH OF THE FETUS.

Under this heading we are dealing with that which because of the oftentimes serious import the cause of death of the fetus has upon the mother, will best be taken up under the considerations of Tubal-Abortion, and the so-called "Fleshy Mole" or "Blighted Ovum."

Conditions favoring, the dead fetus may be absorbed, may cause sloughing of the sac, or can be converted into a "lithopedion" or be transformed into a material called "adipocere."

2. Changes relative to the maternal parts.

a. Increase in the blood-supply.

As soon as the ovum finds lodgment in the tube and

development begins, then a change in the blood-supply noticeably about the site of lodgment of the ovum takes place. Blood-vessels seemingly develop cominantly with the development of the ovum, and a very great increase in the amount of blood circulating in this portion of the tube takes place. And, too, this increase in the blood-supply is not the result of perfect circulation, but rather imperfect, and a turgescence of the part takes place. I think I can safely advance the opinion that increase in size of the tube is greatly maintained by this disturbance of circulation, as well as by growth of the fetus.

b. Changes in the tube.

A tube the seat of ectopic gestation very soon becomes altered. By the end of the eighth week the abdominal ostium becomes closed. Bland Sutton's explanation of the method of closure is unique and an accepted truth. Mr. Sutton says: "That a swelling and protrusion outward of the Fimbriae occurs and that thus gradually it grows out and beyond the ostium, which, so to speak, becomes buried in the fold of the fimbriae." He estimates that about eight weeks is the necessary time taken to complete this process. On the other hand specimens of Tubal Pregnancy occasionally are seen where the ostium abdominalis remains not only patent, but dilates. The nearer the ostium is to the site of pregnancy, the more apt is the ostium to become occluded.

As the tube is put more and more upon the stretch by the increasing size of its contents, the lining membrane loses its villous-like folds, and finally becomes smoothed out till a flat surface presents.

Hence we here have an explanation why the attachment of fetal structures to maternal parts is so insecure. Though the Chorionic villi develop, yet on account of the continual distention of the tube, these villi have difficulty in gaining a firm hold over any great extent of surface, for the tubal membrane is constantly growing away

from these structures, so to speak. And this, coupled with the absence of a decidual membrane renders the life of the fetus most uncertain and facilitates the occurrence of hemorrhage between the fetal membranes and maternal parts. Thus it would seem that nature provides a means of destruction of an ectopic fetus.

Regarding the formation of a decidual membrane in the tube, at the present day this is considered not to take place. Much work has been done along this line. Wyder, Mandl and Veit claimed that they found decidual cells in the pregnant tube. Orochorwink claimed to have found them in seven or eight cases and in the eighth found a decidual membrane, Abel also claims he found a marked decidual membrane.

On the other hand Aschoff found no such evidence of decidual formation. By most, if not all, the opinion of Krinke that the cells described by many as decidual cells were in reality the cells of Langham, is accepted as the truth.

The submucosa of a tube which contains a fetus resembles strongly at first sight a decidual membrane.

The submucous coat receives the same effect of pressure and becomes disturbed. The chorionic villi also are found dipping down into this coat.

The muscular coat, receiving the pressure becomes greatly thinned. No increase in the muscular fibres occurs, as is the case with the uterus in uterine pregnancy.

The peritoneal coat shows increased vascularity and is much stretched.

c. Changes in the Uterus.

The uterus undergoes changes similar to those observed in normal pregnancy. It is increased in size. However, whether this is due to an actual increase in the number of muscular fibres as is the case in uterine pregnancy, or whether it is only due to a softening and changes in its mucous and submucous coat, I do not know. The

Cervix becomes patulous and of a bluish color. The os is dilated and I have observed that it is filled with a plug of mucus or mucus and blood. A decidual membrane forms in the Uterine cavity, but differs from the membrane of uterine pregnancy in so much as it is but one layer. It is the Decidua Vera, in other words.

D. TUBAL ABORTION.

From a surgical standpoint by far the most important phenomena connected with ectopic pregnancy are tubal abortion and rupture of the gestation sac.

By the term Tubal Abortion we refer to those cases of ectopic pregnancy in which the fetus and membrane are wholly or partially expelled from the tube without a rupture of the tube taking place. Such an escape must necessarily occur either per abdominal ostium or into the uterus. That such an event ever took place per uterus is not proven, though it is said with perhaps good ground upon which to establish the claim, that the variety of ectopic pregnancy, known as Interstitian, might abort into the uterus. The difficulty of proving such occurrence is obvious.

I venture to say that in tubal abortions those cases of pregnancy situated towards the ovarian extremity would be apt to meet this fate. That tubal absorption does occur there is proof positive. Before the New York Obstetrical Society a few years ago, Dr. Edebohls presented a specimen of tubal pregnancy, in which the fetal membranes were intact, one end of the membranes being free in the abdominal cavity and the rest grasped by the fimbriated extremity. Thus the process of abortion was actually seen. Tubal Abortion must occur before the eighth week of the pregnancy, for by this time the fimbriated extremity has closed over the abdominal ostium.

As regards abortion into the uterus I do not think that it need occupy any attention. If it does occur it is not surgically of interest.

The method of abortion must consist of certain definite factors and the production brought about by positive occurrences. That the process of abortion is a rapid process seems to me a mechanical impossibility, but that it is a gradual process seems borne out by facts.

As the causes of abortion I would cite two factors; viz :—

1. Hemorrhage into the tube.
2. Expulsive power of the tube.

That hemorrhage in varying degrees does very often take place by the separation of the Villi is evident from specimens and what would be expected from our knowledge of the attachment of fetal structures to maternal parts. Such a hemorrhage gradually taking place, would first free the membranes more or less completely from the attachment to the tube, and continuing, finally fill up the tube till blood finds its way to and later through the abdominal ostium. That this blood is clotted, there is no doubt, and its escape dilates the ostium. The "Blighted Ovum" has now been pushed and washed along till it becomes engaged in the ostium and finally makes its way through into the abdominal cavity, aided always by the pressure of the blood and possibly the contractions of the muscular coat of the tube. With tubal abortions brisk hemorrhage takes place and this would seem to bear out the above assertion.

The abortion may be complete or incomplete. The cases of so-called abdominal pregnancy were no doubt first tubal and by incomplete abortion the fetus reached the free abdominal cavity while the membranes remained intact at the placental site and nourishment was thus carried on. It seems hardly probable however that a fetus will survive a process of this kind, and I think the rule is that its death will occur.

Cases are on record showing that abdominal pregnancy occurred. One where the pregnancy took place in a wo-

man who had a fistula after cesarian section, and one where a hysterectomy for myoma had been done. Some doubt has been shed upon one of these cases.

The symptoms presented in tubal abortion are those of internal hemorrhage, and so will be considered in conjunction with symptoms of rupture of the sac, for the symptoms are the same and demand the same interference.

A word regarding the hemorrhage in this condition. I believe that the amount of blood lost, if the abortion be incomplete, could be even greater, and place the patient in as precarious a condition as the hemorrhage from rupture of the sac. In an incomplete abortion everything would favor a very free hemorrhage, as the membranes not being completely detached, necessarily cause the venous channels to remain patent.

1. RUPTURE OF THE GESTATION SAC.

That an ectopic pregnancy situated in any portion of the tube can go to term uninterruptedly is absolutely impossible. One of two things must occur. Either the gestation sac must rupture, or the so-called tubal abortion come on. Of these two conditions probably rupture of the sac takes place many times to abortion once. Seeking for a cause of rupture one is reminded of these facts:—that the tube is under enormous distention and is hence very much thinned out, due both to the growth of the contained fetus, and the deportation of the chorionic villi and turbescence. But I hold that “a more probable and potent cause is hemorrhage between the maternal structures and the membranes, and into the fetal sac at times.” The growth of the fetus is a gradual one, and therefore the pressure comes on gradually, from this cause. But the pressure excited by a hemorrhage to an already tense and over-disturbed sac is sudden, and would seem a powerful cause of rupture. How easy hemorrhage takes place in these cases is evident at once

upon bringing to mind the conditions existing between parts and fetal structures.

To place such a view upon firmer footing, allow me to cite the following, which it has been my good fortune to observe in my practice :—

I was called in the early morning to visit a patient and made the diagnosis of ectopic pregnancy. The fact was of course easily recognized that no rupture had taken place. I am as positive as one could be in these cases that the pregnancy was not more than six weeks advanced. In a pregnancy of such length of time the resulting fetus and membranes, no matter where occurring would be a small mass indeed. My examination revealed a tumor mass the size of an egg. This I think is larger than a four to six weeks pregnancy should be if in perfect condition. A uterine pregnancy would not be larger if so large, and here we have the decidua membrane added. But most significant, however, is this fact, that in about twelve hours from the first examination when I again saw the patient, (by the way her pain had been most constant and very intense during this time) examination revealed a tumor mass much larger. This increase in the size of the tumor struck me forcibly at the time and made my appeals for operation still more strenuous. In two hours more I went back to the patient with Dr. Heyer as consultant and found her collapsed and most desperately situated. Rupture had taken place and my patient was so nearly exsanguinated that we had no hope of her ever reacting. (For report of this case see *Am. Jour. Med. Sci.*, Feb. 1904.) I think that in this case no one will doubt a moment that the increase in size of the tumor mass and the pain, too, were due to a gradually increasing hemorrhage, and that the pressure exerted by this rather sudden application of blood to the already over distended tube was the chief cause of rupture.

Such an experience as this I think is rare, but certain-

ly instructive. Now ordinarily as one recalls to mind the tumor masses found in cases of ectopic gestation before rupture, I think that the impression will come back to us that in all these cases the tumor was larger than might be expected.

A case of tubo-uterine pregnancy occurring in the practice of my colleague Dr. Heyer, and upon which I operated is another illustration showing why I so thoroughly believe in blood-pressure as a cause of rupture of the sac.

In examination of the pelvic organs in this case a tumor mass as large as a medium-sized orange was found. Now from all probable reasoning this patient could not have been over eight weeks pregnant. I ask, would an eight weeks pregnancy cause such a sizable tumor? Most positively it would not. Why was this sac so large then? It was due to blood, due to a hemorrhage or rather probably a succession of slight bleedings into the sac, and this was evidenced at the time of operation by the evidence of much fluid in the sac, by sight, for the sac had a dark purple hue which would indicate the presence of blood, and further, when I incised the sac dark blood and blood-clots came away. Examination of the membrane gave evidence that hemorrhage had taken place between the sac and fetal membranes. Judging from the size and development of the fetus, which was found, I should say that six weeks was the longest time the pregnancy had existed. A full report of this case follows. Referring again to these hemorrhages which take place into the sac and which I call "intrinsic hemorrhages" in distinction to other hemorrhages, I want to say that the sharp sudden pain, transitory in character, of which these patients complain, might quite positively be attributed to a very slight intrinsic hemorrhage. The pain ceases when the sac has enlarged enough to accommodate these added contents. The addition of a few drops of blood to the tense and already over-distended sac,

together with the separation of the villi which occurs, could cause excruciating pain. The faintness which oft-times accompanies these attacks of pain I think can be attributed to the pain rather than to the loss of blood which is probably small.

The point of rupture as a rule is at the placental site, and such would be expected. However, I do not think that any rule can be deduced as to when the rupture will occur. To say at the weakest point is saying nothing. Probably any portion of the sac is apt to give way, and that decided by circumstances as to what adhesions have formed and to the application of the various pressures. From an anatomical point of view the weakest point of the tube is that portion lying between the folds of the broad ligament. The occurrence of a broad ligament hemocele to-day is seldom heard of unless associated with ectopic gestation.

EFFECT OF RUPTURE.

When rupture does occur the fetus and membranes are wholly or partially expelled from the tube. In my specimens there is quite a bit of membrane attached to the tube, and probably this is the rule. However, the surgical interest rests in the influence the rupture has upon the patient. The hemorrhage which occurs from a ruptured tube is always severe and may prove fatal in a very short time.

HEMORRHAGE.

Anatomical arrangements of the broad ligament make it possible for hemorrhage to follow two routes, viz:—

1. Into the broad ligament.
2. Into the peritoneal cavity.

When the point of rupture is so placed that it overlies the interligamentous space, the blood finds its way between the layers of that structure. This form of rupture is called extra-peritoneal, and it is less severe and less dangerous to the patient. For it is confined to a

certain extent, and the resistance of the layers of the broad ligament tend to check the hemorrhage and to also wall it in.

Should the contents of the tube become a "blighted ovum" it is fortunate for the patient, as the pregnancy is then at an end. The blood flow finally becoming checked, we then have a broad ligament hematocoele. The blood first clots, then one of many things may arise if the patient is left alone.

1. Absorption of the Effusion.
2. Infection and Suppuration.
3. Rupture of the secondary sac.
4. Development of the fetus.

That in time the economy may absorb this effusion is possible, but however, a tremendous risk there is to the patient.

Infection and suppuration of the sac and contents is of serious if not fatal consequence.

Rupture of the secondary sac occurs in those cases where the fetus is dead and suppuration takes place. Such a rupture is called secondary intra-peritoneal rupture and the contents of the sac are liberated into the peritoneal cavity, and its evil results demand no remarks here. It may be, however, that no rupture takes place at all.

If the fetus is not destroyed at the time of the primary rupture, it may remain and develop in its newly-found home. This circumstance has been called broad ligament pregnancy. To go further takes us by the time to which I have limited this article.

HEMORRHAGE INTO THE PERITONEAL CAVITY.

This is the usual termination of ectopic pregnancy. It is suffering from this accident that we meet most of the cases of ectopic gestation, and here confronts us both sad and brilliant results. Such a variety of hemorrhage occurs when the rupture is through the peri-

toneal coat of the tube, and the tubal contents and blood are forced forth into the peritoneal cavity. The hemorrhage may be fatal in a few minutes. Many cases are so recorded. Here no other measure than the coagulation of the blood can be looked for to check the hemorrhage. The bleeding can go on to any degree. Shock, too, adds to the seriousness of the situation. Death generally follow such a rupture, if not immediate, within a short time, if the patient is left alone.

A supervening septic peritonitis, from what I can gather, is rare. Perhaps time for its development was not sufficient. Be this as it may, in these days no such opportunity should be given for a peritonitis to manifest itself. "A patient, the victim of rupture of an ectopic gestation sac, if not actually dead, has some chance at the hands of the surgeon, of still surviving, and I do not hesitate to say that such chance should be given." Certainly most brilliant results have followed energetic action on the part of the surgeon in these most desperate conditions.

Symptoms:—

1. Before Rupture or Abortion.
2. After Rupture or Abortion.

The subjective symptoms of ectopic gestation are indefinite and vague. For the first few weeks, up to the end of the first month, probably, nothing in the feelings of the patient suggests anything abnormal. Such is the rule in normal pregnancy. When, however, the expected time for the next menstrual period comes around, the patient is astonished that she does not flow, and probably for the first time some pain and very irregular feelings now appear. These may be attributed to the menstruation being due. However, patients suffering from ectopic gestation go over their time from a few days as a rule, to weeks. A few cases are on record, however, where the bleedings came on before the time for men-

struation was due. Sooner or later, though, a flow commences, but very unlike the normal flux. Instead of a bright color the reverse is true, and a dark, more or less clotted flux is the rule. This is often the first warning the patient has that all is not right, and oftentimes leads her to seek advice. I firmly believe that this change in the menstrual function is the most constant and trustworthy evidence of ectopic gestation. Pain, in any degree, but apt to be sharp, now makes its appearance with the period of flowing, if it has not before been evident. The flow is irregular. It may be a mere show, stop, and repeat itself in a few days, or it may be a steady flow, the amount varying, and keep up for several days. Most any combination of amount of the flow and periods of time are hit upon.

The character of the flux seems to be constant, however, as regards color and other physical properties. Uterine colic accompanies the flow. At this time the patient has gone on into the second month of pregnancy and such subjective signs as nausea, vomiting, pains in the breasts will be met with, though I consider that little confidence can be placed in these evidences, for as like as not, none of these symptoms of pregnancy appear.

Pain, however, now becomes a rather marked symptom. The pain is described as sharp and rather sudden, and is referred to the region overlying the tube and ovary. A feeling of dragging and pressure over the region of the tube is oftentimes spoken of, and the sharper pains are apt to radiate downward over the antero-internal aspect of the thigh on the side affected. The pain seems to be exaggerated just before and at the time of the appearance of the flow.

Though these various pains and irregular feelings complained of are rather indefinite, yet there is certainly a rather characteristic picture presented from time to time. I refer to those rather transient attacks of sharp pain, suddenly appearing and of a cutting character,

radiating downward over the thigh, and centered in the region of the tube, which are accompanied by faintness in varying degrees. I believe that a history of such pains, combined with the disturbance of the menstrual function is very characteristic of ectopic gestation. Only one such attack may come on and be the evidence of abortion or rupture, or a patient may go on having many such attacks before the termination of her trouble comes about. I have already expressed my opinion that these pains and faintness are due to "intrinsic hemorrhages." Certain objective evidence of ectopic gestation appears, one of which I think is constant. The uterus enlarges somewhat and becomes softer. The cervix, however, gives most definite evidence. It becomes soft and the os is slightly dilated. I have also noticed a bluish tinge to the cervix though the rest of the genital tract did not show color change.

Examination of the abdomen may show bulging over the tumor mass, but under ordinary circumstances, probably not. I observed such a fullness, but this patient had an extremely thin and flat abdomen with a decided antversion and the interstitial type of tubal pregnancy.

Tenderness over the pelvic cavity is usually marked, more exquisite on the affected side. Palpation may reveal a tumor mass, but I suggest extreme care be taken in handling a pregnant tube.

Per vagina marked tenderness is the rule throughout the whole extent of the vaginal vault, and a tumor mass will be found on the affected side. Intense pain and tenderness obtain about the tumor mass on pressure. These masses I think will be found considerably larger than we are generally led to believe. The vessels about the tumor mass are large and pulsate. The mass itself is tense, firm and ovoid in shape.

To enumerate a train of symptoms of ectopic gestation which would lead one to a diagnosis would be impossible. This condition may give barely a symptom till rupture

or abortion takes place, or on the other hand, a long drawn-out history of suffering. Subjective evidences of pregnancy may or may not appear, and with the time I am considering these cases, objective signs of pregnancy would hardly be expected. Nevertheless we can unravel from the entangled mass of symptoms some very characteristic evidence, and I would call attention to the following:—

1. Disturbance in the menstrual function by first the delay of the period, and then, after a varying delay, the appearance of a flow, changed in physical aspects from a normal flow as above described, accompanied by increase in pain and often uterine colic. That it is most capricious in onset, abatement and amount and often contains membrane. In reference to pain the transitory sharp cutting pain accompanied by faintness, with the above menstrual history is most characteristic. If at the same time the os uteri is soft and patulous, there is presented a picture which, with due care and attention being first paid to a few conditions more common in occurrence, will lead on to a correct diagnosis of ectopic pregnancy before rupture or abortion. I am of the opinion that when we find a patient in this condition, flowing more profusely quite suddenly, and with increasing pain, that the time of rupture or abortion is close at hand, and that such is a danger signal. The symptoms of rupture or abortion are those of internal hemorrhage. A sensation of something giving away, associated with pain and faintness is the usual history. Evidences of profound internal hemorrhage quickly supervene. If the blood is found out between the layers of the broad ligament, examination will reveal the tumor mass, but if the bleeding is in the peritoneal cavity, no mass will be discovered. A subnormal temperature, and rapid weak heart-action attend the bleeding. After a few hours tenderness over the whole abdomen comes on, and the patient, if surviving, commences a reaction.

Treatment:—

It is my opinion that celiotomy is the treatment par excellence for ectopic pregnancy. It is certainly the only recourse after rupture or abortion. But to me it seems true that it should be brought to bear on every case of ectopic pregnancy, as soon as the diagnosis is made. That in the future such diagnosis will be more often made, I feel positive. I can conceive of nothing so absolutely dangerous to a human being as a pregnant tube. It almost ranks in its insidious death-dealing, with such diseases as angina pectoris.

A patient carrying around such a tube, will, without any apparent cause, or by a jolt, fall, or extra exertion, have her life placed in jeopardy in a moment, and perhaps lose her life in a very short time. If from such a calamity one may be saved, truly it is our duty to save.

The operation itself is of the simplest possible. In no way is it different from the extirpation of the tube and ovary in its method.

Evacuation of the liquor amnii and injection of lethal substances (Jonlin's treatment) may be mentioned merely to be condemned.

Elytrotomy is certainly a poor procedure, uncertain, and handicaps manipulation. It might be undertaken in the early weeks, before rupture, of course, but I think it finds few adherents.

The use of the electric current has been prominently before the profession since Bachetti, of Pisa, in 1853, killed a fetus with it.

Gaillard Thomas reported a number of successful issues of this treatment. Brothus has collected some forty cases treated thus with two deaths. But all these cases were thus treated before Abdominal Surgery was developed into the accurate science it is to-day.

The element of doubt, too, must come in where cases are recorded as ectopic pregnancy and cured by Far-

adism, for the difficulty of diagnosis in these early weeks renders such doubt very reasonable.

When it is considered that if the fetus should be killed by electricity, only part of the conditions of successful treatment has been accomplished, leads to condemnation of this method from that standpoint. That a dead fetus with its membranes, enclosed in a very much damaged tube is a harmless thing in itself, and that its retention, though dead, is of no import, certainly is not true in the light of aseptic surgery, and with our knowledge of sepsis, "this dead thing becomes positively a thing to be feared."

There is always this harm done that the patient has a damaged tube which will perhaps sometime call for more severe surgical interference than would have been the case otherwise.

The danger patients are in, who have pregnant tubes, and in the increasing of the danger by using other methods than operation for its relief is well illustrated by the case cited below.

Dr. J. E. Janvrin reported this case before the Am. Surgical Society in Washington in 1886. Galvanism was made on three successive days, to a pregnant tube. The day after the third application, the doctor was summoned to the patient, and upon his arrival the patient was dead. A post-mortem proved that death was due to hemorrhage. "That it is dangerous to manipulate a tube the receptacle of an ectopic gestation," is a true saying.

Celiotomy before rupture or abortion requires but a short time, is simple, and nothing interferes with the easy removal of the tube. There are no adhesions to deal with, and no blood to obscure vision.

In dealing with the tube, it may be either

1. Opened, and the contents evacuated;
2. A portion resected;
3. Complete removal of the tube;

4. Removal of both ovary and tube.

Probably to-day only the last two of the methods employed would be considered. Each surgeon has his own ideas and favorite methods. Personally, I prefer to extirpate tube and ovary.

If after rupture or abortion celiotomy is done, then though the same technique holds, and methods of procedure obtain as in operation before these accidents, yet the operation is a bit more formidable. The patient is in a weak, even collapsed condition, and vision is interfered with by the welling up of the blood. Here, not only is the tube dealt with, but the blood requires attention. From time to time articles appear in which it is advised to let the blood remain. To me such advice is against all principles of surgery. I believe that the cleaner the abdominal cavity is left, the better will be the results obtained. To empty the peritoneal cavity of blood can in no wise injure the patient. To leave the blood can **very easily** cause her death, and the principle upon which surgery is to-day planted, is cast to the winds. In surgery cleanness must be before the mind. Clean blood can soon become unclean even in the peritoneal cavity.

The method of continual irrigation with hot normal salt solution, to which I have called attention before (see *Am. Jour. Med. Sci.* Feb. 1904) not only is effective in doing away with the blood, but at the same time, it is bringing the patient back to life by replacing the lost fluid, and counteracting the effects of hemorrhage and shock.

If the hemorrhage is into the broad ligament, and during the manipulations of operation, that structure still remains intact, it should be incised and emptied of its contents.

It seems unnecessary to emphasize that as soon as the abdomen is opened, a clamp or ligature should be placed about the offending tube before any other steps are taken.

If the pregnancy is of the interstitial variety, and the sac has ruptured, probably the only method to pursue is to do a hysterectomy. Should, however, the sac be intact, then I most heartily recommend my procedure which was successfully carried out; viz:—To open the cervix, and puncture the sac through the uterine wall, curetting sac and uterus.

INFANTILE SCORBUTUS.

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Tabulated cases of Scurvy in children are still rare, as far as I know; in fact it is only within a comparatively short time that it has been recognized as a separate disease, as Northrup very tersely explains it, that this cachexia has been ascribed to rickets, and has found its way into literature as "acute rickets," or gone astray under purpura hemorrhagica.

Having recently seen a few cases of infantile scorbutus, I thought it might be interesting to draw the attention of the Society to this disease and report two cases.

Infantile Scurvy is a constitutional condition or disease brought about by improper feeding, although one case reported by Northrup, and a fatal one at that, was wet-nursed by a woman whose own child thrived, the presumption being that the condition was caused by insufficient food; but it seems rational to suppose that there must also be a predisposition on the part of some children to have Scurvy, for we all know children who have been fed on all sorts of proprietary foods, condensed milk, etc; and yet they escape this disease. To be sure some may have some stomach trouble, bowel trouble, or no trouble at all, but the fact remains that Scurvy is rare, when one considers the number of children who are brought up on proprietary foods; although Holt claims that it is not so uncommon as it is unrecognized. England seems to have furnished the most cases, and we are indebted to Drs. Cheadle and Barlow for their recognition of this disease, and literature on the subject.

In fact it is often called "Barlow's Disease" in Germany. To Northrup must be given the credit for placing Infantile Scorbutus as a separate disease in its proper position in Pediatrics, in this country.

While there are many diseases due to faulty nutrition, yet Scurvy shares with rickets the unique distinction of being classified together as essentially "food diseases."

Scurvy is defined as "a constitutional disease, due to some prolonged error in diet, characterized by swellings and ecchymoses about the joints, especially the knee and ankle, hemorrhages from the nose, and occasionally other mucous membranes, extreme hyperesthesia, and often pseudo-paralysis of the lower extremities, with usually a well-marked anemia."

More than four-fifths of the reported cases occur between the sixth and fifteenth months, and half of these between the seventh and tenth months. Sanitary surroundings do not seem to figure much in this disease, as it occurs among all classes and conditions of people.

The 379 cases cited by Holt in the last edition of his work, show that any form of food may be a cause of Scurvy, even breast-milk, but this is the exception. The three which stand out most prominently are: Proprietary Infant Foods, Condensed Milk, and Sterilized Milk, showing in all cases of Scurvy that the something needed for the proper nutrition of the infant was lacking.

It usually takes a long continued error of diet to develop this condition, although a few cases have been reported in children under one month.

Proprietary infant foods take the lead by over fifty per cent. of the reported cases. In many of these, but a small amount of milk was used. To the overheating of the milk in the case of the so-called "sterilization" of milk which is practised by many people, is ascribed the large number of cases reported from this kind of feeding.

No theory has yet been advanced in explanation how diet causes Scurvy, and no single dietetic error yet held responsible. (Holt).

The profession is again indebted to Northrup for the first autopsy here, and the pathological findings which he reported have been verified by all subsequent observers, who have been fortunate enough to witness a post-mortem examination on a case dying from this cause.

But few deaths have occurred from Scurvy and fewer autopsies have been made, so that the true lesions may not yet be fully defined, as those found show only the extreme cases.

The most striking as well as the most constant lesion is the subperiosteal hemorrhage which may occur anywhere in the body, but affects chiefly the bones of the lower extremities, and is often extensive.

Separation of the epiphyses from the shaft of the long bones has also been found. The microscopic changes in the bones are claimed to be similar to rickets. Holt claims that the alterations in the blood-vessels are an important factor in bringing about the disposition to hemorrhage, but as yet have been very imperfectly studied.

Taking up the symptoms of this disease, the one which most forcibly struck me in the few cases I have seen, was the fact that the child cried every time that it was handled or approached by the mother or anyone else, and was contented to remain quiet in almost any position in which it was placed. This combined with a history of peevishness, irritability, and loss of appetite should put one on his guard. Later come the more typical symptoms such as the swellings, most often about the ankle joints, also the changes in the buccal mucous membrane, the Scorbutic Stomatitis (ulcerative), although in one case I saw there were no mouth symptoms.

The gums are purplish and bleed easily, and there is also an obnoxious fetor to the breath. As these condi-

tions go on the child becomes markedly anemic, and loses both weight and strength. The legs are flabby and swollen, and a condition of pseudo-paralysis may develop, the child refusing to move the leg on account of the pain, and probably the general weakness. Also this is said to be due sometimes to epiphyseal separation. Ecchymoses frequently occur about the joints, although I was able to find this condition in only one case. The swellings in these cases are peculiar, fusiform, tense, commonly without redness, do not fluctuate, and may be palpated without pain. Protrusion of the eyeballs is claimed in ten per cent. of the cases.

Hemorrhages may occur from any mucous membrane, but are more common beneath the skin resembling the ordinary bruise, or the "black and blue" spots. Anemia and the cachectic appearance is very well marked in the later stages. There may be a slight and erratic rise of temperature.

Death may come slowly from asthenia, or rapidly from heart failure, or any intercurrent disease however slight may lead to this termination.

The disease most frequently confounded with Scurvy is said to be Rheumatism, although the diagnosis of poliomyelitis has been made from the apparent disability, as also have been hip-joint trouble, and some more serious surgical diseases.

The outlook for these cases when seen at any stages of the disease is almost invariably good. The improvement when placed on the proper treatment takes place almost immediately, even in the severe cases, and the results achieved are very gratifying to both the parents and the physician. Of course, the more severe the case the longer will be the time required for the child to get back to its normal condition, the anemia being the slowest part of this disease to overcome.

The treatment resolves itself into

First: Stopping whatever kind of food the child may

be having at that time, and placing it on a fresh modified milk, which is adapted to the child's needs and condition.

Secondly: Giving some fresh fruit-juice. I have used orange-juice in my cases with uniformly good results. For the anemia some form of Iron is indicated. Older children may be allowed some fresh vegetables such as potatoes, with meat gravy.

In regard to the other food disease, "Rickets," the American Pediatric Society's report shows that about forty-five per cent of the cases of Scurvy showed some evidence of rickets. While the causes of these two diseases may be similar, and while both may exist in the same case, yet they are recognized to-day as two separate and distinct diseases for, as Holt puts it: "The tendency to hemorrhage and the prompt curability by fresh foods and fruit-juices have no counterpart in rickets."

I have now to report two cases, the first of which is the mildest I have seen, and the second, the most severe.

I was called to see a child who had fallen out of bed a few days before, and as the mother explained it when I arrived, 'he cries every time I move his leg or change him, and I know he has hurt his hip-joint.' After examining the child as carefully as I could, and finding no evidence of injury excepting a black and blue spot (echymosis) on the thigh, near the hip-joint, and a swelling on the thigh, above the knee, rather tense, but no fluctuation, apparently not painful, for I could palpate it all I wished, but the moment I moved the leg there was a cry of pain. I told the mother that I could not find any evidence of injury from the fall, and asked for some more information, which I found out was as follows: Family history negative, except that maternal grandfather died of tuberculosis. This was the second child, six months old, apparently well nourished, plump,

good color. First child alive, healthy, two years of age, both nursed two to three weeks, then put on to condensed milk. No teeth, but both were backwards, no mouth symptoms, no rise of temperature. Mother had noticed that the child was peevish and fretful, without much appetite, and showed a disinclination to be handled before the fall, but much more so after. I told her that I thought that some other cause would account for the trouble rather than the fall, and suggested changing the food, but the mother informed me that the first child had done well enough on the same food, and insisted that there was some trouble in the joint. I then asked Dr. Cook to see the case with me, who, after his usual careful and thorough examination, informed the mother that there was no trouble in the joint. On the way down to the station, Dr. Cook characteristically remarked, "if you will put that child on to diluted milk, and give it the juice of one orange every day, the Lord will do the rest, and the child will be well in a short time." He was a good prophet.

The second and most severe case I have to report has the following history: Female child sixteen months old. Had been failing for some time, no particular cause as far as the mother knew. The child then became peevish and fretful, perspired freely about the head, sleep broken, and appetite gone. Cried every time she was moved and refused to move the legs or attempt to walk; as the mother explained it she was too weak. The child, so it is claimed, weighed eleven and three quarter pounds at birth, but at four months had only gained one pound and a quarter. Nursed one week, then all the different proprietary foods were tried, until condensed milk, which seemed to agree with her better than anything else, and this had been her diet for a year. The family history was negative and the surroundings good. The child seemed to have no trouble until a month or six weeks before I was called, and then the parents did not think much of

it, laying the condition to its being housed up during the winter. The physical examination of the child showed it to be a typical case of well-advanced Scurvy, with the swellings of the ankle and thigh; also one, which was new to me, which was on the bottom of the foot, under the heel, the same fusiform, tense, non-fluctuating swelling, without redness or pain or palpation. Pain on movement of the legs, and the pseudo-paralysis were well marked, and the legs were also thin and flabby. The mouth showed the scorbutic stomatitis, with sordes on the lips, which bled easily, and the breath was very offensive. There had been epistaxis, and the urine showed some blood-corpuscles, a trace of albumin, mucus, uric acid, etc. Fever occurred at irregular intervals. The child was very pale and anemic, with a very decided cachectic appearance.

Placed on milk, orange-juice, potatoe with gravy, and iron, she made a very prompt and satisfactory recovery.

ACUTE NEPHRITIS IN INFANCY.

WALTER G. MURPHY, M.D.,

EAST HARTFORD.

At one time Nephritis was considered a very rare disease in infancy. To-day, with the more careful attention given to the study of children's diseases, many cases are reported which formerly were not recognized. Nephritis is not, however, an everyday occurrence in practice, and its course, when present, is entirely different from the disease as commonly observed in older children and adults. The diagnosis is often very difficult, particularly in the early stages, and unless carefully sought for the disease is not easily recognized.

Holt says the onset is generally abrupt, with high fever and vomiting; dropsy is exceptional early in the disease but present towards the close; anemia is a prominent and valuable symptom. At times there is dyspnea, without pulmonary disease. Nervous symptoms are common; dullness and apathy are usual, convulsions rare. The urine is not often scanty until the close and sometimes not then; suppression of urine is not common. Albumen is frequently absent early in the attack but invariably present at a later period, rarely in large amounts. Casts can be found, by centrifuge, and are of the hyaline, granular and epithelial varieties; blood-casts rare. Pus cells, renal epithelial cells and red blood-cells are found.

Considering the difficulty in diagnosis, the liability to confuse this disease with other conditions, and the relative infrequency of nephritis in little children, the writer hopes the Society will be interested in the report of two cases he has recently encountered.

Case 1. D. B., female, age seven months.

Family history negative, except mother who suffered from acute nephritis of pregnancy with the premature birth of the baby as a result; otherwise there is no disease or tendency on either side.

Personal history: Born January eighth, 1903; weight at birth, six pounds. She was fed artificially on a milk and cream mixture. Initial loss in weight, one pound, after which she gained steadily until the third month when her weight was seven pounds one ounce. At three months her diet was increased and she was given, in addition to her milk mixture, one-half teaspoonful of fresh beef-juice twice daily. At three and a half months there was a sharp attack of indigestion lasting three or four days. Bowels generally in good condition, at times constipation alternating with diarrhea. After the third month she gained slowly, sometimes only a quarter of a pound a week, other weeks not any. At five months food increased in quantity and strength and beef-juice was given, one teaspoonful three times daily, and then every other feeding. Was anemic, and attacks of indigestion, with vomiting and diarrhea, were more frequent. At such times barley-water was substituted for the milk. Weight at five months nine and one-eighth pounds. Appetite capricious and she did not sleep well at night; suffered frequently from colic, the movements often contained curd, were green in color and generally offensive; vomited easily. Weight at seven months ten and one-half pounds, a total gain of only four and one-half pounds since birth. At this time she was taking milk diluted one-half, in combination with a prepared food with beef-juice. Seemed in fair condition up to August second when she had a sharp attack of gastro-enteritis with vomiting, diarrhea and fever. I saw her for the first time August fifth.

General examination: Anemia marked; temperature 104° per rectum; cried very little; listless and rather

stupid in facial expression and attitude; muscles relaxed; abdomen distended. The most noticeable symptom was a general anasarca which pitted deeply upon pressure and involved principally the face, neck and extremities. This was first noticed as a slight puffiness about the eyes three days before I saw her.

Physical examination: Fontanelles open and not depressed, head rather large with craniotabes; no teeth; tongue coated, lips and mucous membrane of the mouth red and dry. Throat normal; eyes partly closed, pupils normal in size and reaction; facial expression dull. No superficial glandular enlargement; well marked rosary. Lungs negative except over lower posterior portion there were a few coarse râles, bronchial in character; respiratory sounds not increased. Heart area normal, no valvular disease evident, second sound apparently accentuated. Stomach area enlarged; intestines considerably distended with gas. Liver dullness normal. Spleen apparently enlarged. Respirations rapid and somewhat labored, pulse rapid but regular with some increased tension. No muscular twitchings. General attitude suggested meningitis. Koenig's sign and Babinski's sign absent. Quantity of urine normal. Diarrhea; movements greenish, containing curd and odor markedly foul --much more so than usual in these cases. Vomiting occasionally, mucus and some curdled milk. Examination of urine showed albumen one-third by volume, acid in reaction, no sugar, a well-marked reaction of diacetic acid. After precipitation by centrifuge, microscopical examination showed granular and hyaline casts with renal epithelium.

No blood examination made.

Diagnosis acute nephritis.

Treatment: All milk was stopped and no food given; boiled water only for ten hours and then barley-water. A high rectal enema of salt and water was given and the

bowels thoroughly flushed and this was followed by one-half ounce of castor oil by the mouth as soon as the stomach would retain it. Vomiting ceased after the enema. Cool sponging, small doses of brandy and ten grain doses of bismuth after the oil had operated.

August fifth. Barley-water discontinued and whey given, but baby does not retain it readily. Condensed milk one to fifteen tried with about the same result. Temperature 104° , pulse rapid; odor of movements less; considerable mucus; urine scanty.

August sixth. Temperature 104° ; pulse very rapid but regular; not quite so stupid and dropsy rather less. Does not take condensed milk readily, given modified cow's milk—formula, Fat 2, proteid 1, sugar 3, with dextrinized barley-water; one-half ounce castor oil once daily and five drops dialyzed iron t. i. d. Bismuth given after each movement. Albumen slightly less. Anemia increased.

August seventh. Does not retain the milk; more frequent movements and odor increased; not so bright as day before. Temperature 103° . Milk thoroughly peptonized, same formula; oil continued; very little liquid taken.

August eighth. Rather brighter. Movements better, less mucus and less odor. Milk seemingly agrees; taken nineteen to twenty ounces a day; dropsy less.

From the ninth to fifteenth symptoms improved. Dropsy disappeared and movements odorless after peptonized milk given. Baby greatly emaciated, but much brighter mentally, noticed and wished to touch things. Temperature on the fifteenth 99° . Cries very little, takes nourishment fairly well, oil gradually reduced in amount and frequency. Urinary examination on the eighth, tenth, twelfth and fourteenth showed less albumen. Casts still present. There seemed to be an intimate association between the condition of the bowels

and the amount of albumen present in the urine; when the bowels were free, the movements well digested and little odor the albumen was less.

On the seventeenth baby decidedly worse. Bowels very loose, pulse weak and rapid; temperature 104° ; facial expression anxious; hoarse and examination of the lungs showed numerous râles. Condition thought to be due to catching cold by being uncovered in the night. Died of exhaustion early the eighteenth. No autopsy. In cases reported when autopsy has been made acute parenchymatous nephritis has been found.

Case II. S. M., male, two months.

Family history negative, except mother had acute nephritis of pregnancy causing premature birth of the baby at the beginning of the seventh month. At the time of the baby's birth the mother's urine contained albumen and casts.

Personal history. Born June sixth, 1903. Labor normal. Birth weight four and one-quarter pounds, apparently strong and healthy. He was wrapped in cotton and placed in an incubator and fed by means of a medicine dropper, three grains every two hours with a mixture containing fat 2, proteid .08, and sugar 3 per cent. with lime water. This was retained very well. Until June ninth the movements were brown in color and varied from one to four a day; became yellow on the fourth day. Food then increased to fat 2, proteid .06, sugar 3%. The next day vomited and stools contained curd. Food reduced to first formula, with benefit. Cord separated normally on the sixth day. The weight steadily decreased for ten days and then remained stationary at four pounds. Food carefully increased in quantity and strength. Vomiting infrequent; movements yellow and well digested. By the twentieth day was taking fat 2.50, proteid 1, sugar 4%. Temperature varied from 97° to 99° ; no fever of inanition but no gain in weight. January twenty-eighth vomited once. Removed from

the incubator and dressed on the twenty-ninth, the twenty-third day after birth. June thirtieth vomited twice; movements normal. Looks and acts fairly well. July third vomited three times, a watery substance, but no milk. Vomited once July fourth. Vomiting came on some time after eating, and not easily controlled by changes in diet. Vomited again on the sixth. Milk supply excellent and not too rich; examination showed 4% fat. Vomited occasionally until the twelfth when he had a severe attack containing undigested milk. Improved the thirteenth, and milk, which had been discontinued for twenty-four hours, resumed at slightly lower percentage than he had been taking. Weight remained at four pounds.

I speak of these details to show that in the main the diet agreed. We were obliged to stop the milk only once, and still there was no gain in weight. Temperature normal most of the time; general appearance anemic. Was in fairly good condition on the fifteenth when I left town. During my absence there was a sharp attack of gastro-enteritis, and the baby was quite ill. On my return August first, I found the following condition: Weight three pounds, temperature 101°, pulse rapid but regular; occasional vomiting and four or five diarrheal movements daily. Stools contained mucus and undigested casein and were very offensive; tongue coated; abdomen distended; colicky and occasionally cried with pain. Most of the time was quiet and somewhat stupid. Quantity of urine apparently not diminished. Very anemic. A slight puffiness of the right lower lid was noticed. The usual treatment was employed; all milk stopped and barley-water substituted and one-half ounce of castor oil administered. Examination of the urine showed a small amount of albumen and a few casts.

Physical examination: Small, anemic and poorly developed; skin rather dry, very little adipose tissue; no

evidence of rickets; mouth and lips dry; throat normal; no glandular enlargement; facial expression listless and somewhat stupid; cries only when colicky; vomits frequently. Examination of thorax and abdomen negative, except distention of bowels.

August 2. Anasarca which was very slight on the first considerably increased, involving face and extremities. Temperature 101° ; anemia increased; vomits less and character of movements rather better; odor still present. Whey substituted for barley-water and castor oil each morning advised.

August 3. Albumen in urine increased; anasarca increased; pits readily upon pressure.

August 4. Temperature 103° ; dropsy slightly less; whey agrees perfectly. No vomiting; odor of movements much less and character improved.

August 5. Improvement continues.

August 6. Temperature 101° ; dropsy less.

August 7. Temperature 100° ; pulse rapid, no tension; dropsy less than day before; mental condition brighter; no colic.

August 8. Baby acts hungry. Given two feedings in twenty-four hours of condensed milk diluted one to fifteen, two ounces at each feeding.

August 9. Condensed milk substituted for the whey.

From this time there has been a steady improvement and an uninterrupted gain in weight. Dropsy gradually disappeared and with it the intense anemia noticeable in this case as in Case I.

August 25. Urine contains only a trace of albumen; casts still present.

September 3. Weight five and one-half pounds. Looks and acts better than any time since birth. Movements normal; no vomiting. This improvement has continued to date and the urine is entirely clear. Is still taking

iron and a diet of condensed milk.

As we carefully review the history of these cases, the question naturally arises: Why should these two babies have Bright's disease? We are accustomed to functional disturbances, in infancy and childhood; but this is an organic disease, and is, in a way, unusual. The causes given in the books are scarlet fever, measles, varioloid and varicella, acute local diseases of the skin, erysipelas, rheumatism, typhoid fever, exposure to cold, uric acid infarction, acute and chronic intestinal diseases, toxemia, and so on. Goulkewich in 220 post mortem examinations of infants' kidneys reports twenty-three cases of nephritis. In these the primary diseases were pneumonia eleven, tuberculosis six, and enteritis six.

Limiting our consideration to that form associated with gastro-intestinal disorders, which these two cases undoubtedly were, we find at least three reasons why nephritis should develop.

First. Heredity. Both mothers had nephritis of pregnancy. In this there was perhaps predisposition.

Second. Both babies were overfed with a diet high in proteids. In case 1 when I first saw it, the diet was rich Jersey milk, diluted one-half in combination with a prepared food high in albuminous product, together with beef-juice. This diet was given undoubtedly on account of the failure to gain in weight. In case 2, under my personal supervision from birth, the proteids were pushed for the same reason. The rational indication is to increase the proteids when digestion is good and the baby does not gain. In case II, except for an occasional attack of vomiting, which many infants have, there was no reason to suppose the proteids were not taken care of; most of the time the movements were perfectly digested and curds were not often present. Yeo says, however, that the ingestion of too great a quantity of albuminous material necessitates the excretion, by the kidneys, of so large an amount of nitrogenous waste that a hyperemia

is excited often resulting in disease. This is shown also by Porter in a recent article. That the high proteids were the contributing cause is shown by the prompt improvement in both cases, the disappearance of the anasarca and lower temperature when the proteids were reduced or modified. Case 1 would not take whey or condensed milk, so was given modified cow's milk, proteid .08, but did not improve until the milk was thoroughly peptonized. In case II the improvement began with the substitution of whey for cow's milk. Later condensed milk was given, on account of its low proteids. On this diet the baby is steadily gaining from one-quarter to one-half pound a week.

The third possible reason—really the exciting cause—is the decomposition of the proteid in the intestinal canal, as evidenced by the exceedingly foul odor, in both cases, to which I have referred. When we consider the length of the intestinal tract in infancy; the slight development of the muscular coat; the size and number of the capillaries and the intimate relationship existing between the kidneys and digestive system, we can very readily see how a toxemia could ultimately result in nephritis. The decomposition of the proteids, shown in the odor of the feces, points directly to a toxic condition, and the high temperature indicates an absorption. In our test for diacetic acid, acetone, this opinion is confirmed, and Van Jaksch says diacetic acid is common in auto-intoxication. Uffelmann and Blauberg report finding indican in cases similar to these I have reported.

The several stages then, could be summarized as—first, predisposition; second, a hyperemia; third, an infection.

There is another condition closely allied to nephritis in infancy and which is often confounded with it,—a more or less general anasarca without kidney involvement. Very little is said of this disease or condition in the text books. Fairbanks has recently reported a number of cases in an article in the *American Journal of*

Medical Sciences for September. In these cases many came to autopsy and no kidney lesions were found. The cause is rather uncertain, but I have recently seen such a case. Baby A., at six months who showed a general anasarca and was very weak and anemic. This dropsy involving the face, hands and feet, pitted upon pressure. After careful examination neither albumen nor casts could be found. The temperature was normal. A change in diet with lessened proteids quickly cleared up this condition. These cases should always be thoroughly investigated and with the possibility of grave kidney changes kept in mind. Case II showed evidence of kidney disease, under the microscope long after the albumen had disappeared. Dr. Jacobi has said he could demonstrate kidney disease with the microscope in nineteen out of twenty cases when there is only a trace of albumen. I believe it is possible to have general anasarca without kidney disease, but I believe also that unless the cause of the dropsy is removed kidney disease is liable to appear.

The prognosis in cases of nephritis in infancy is very grave in advanced cases. Holt reports eight cases with seven deaths. If found early the chances are very much better, and many cases are so mild that the disease lasts only a few days or a week.

The treatment is symptomatic and along the lines usually followed in acute Bright's disease in the adult. In the two cases reported in this paper, a reduction of the proteid acted very well. Whether it would be so in all cases I am not prepared to say. Diuretics, on account of the large dose required are not advisable. Plenty of water to drink and warm bathing are indicated. If there is vomiting lavage is necessary followed by castor oil or calomel to empty the intestinal canal of all decomposing substances.

ACUTE HEMORRHAGIC PANCREATITIS.

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It is now known that diseases of the pancreas are far from uncommon, and much has been learned in recent years from the investigations and writings of Fitz, Opie, Flexner and others in regard to the etiology, pathology, symptoms and treatment. It is interesting to note nevertheless that Tulpius found an abscess of the pancreas as long ago as 1641, and that Greisel described a case of gangrenous pancreatitis in 1673.

Portal in 1804 described cases of pancreatitis both suppurative and gangrenous.

In 1842 Claessen collected a series of six cases from various sources. Numerous other articles on diseases of the pancreas have appeared from time to time, but to Fitz of Boston, whose monograph was written in 1889, belongs the credit of first properly classifying the inflammatory diseases of the pancreas, and bringing them prominently before the medical profession. The experiments of Opie and Flexner are well known. Acute pancreatitis has been divided by Fitz into hemorrhagic, suppurative and gangrenous, although it is probable that gangrenous pancreatitis is but a step further in the process of hemorrhagic pancreatitis, as in over one-half of the cases there were in parts of the gland evidences of hemorrhagic pancreatitis, having preceded the gangrenous.

Robson and Moynihan have divided the diseases of the pancreas into acute, subacute and chronic pancreatitis. This by some authorities is thought to be a wise classification, and does not interfere with Fitz's division of

acute pancreatitis into hemorrhagic, suppurative and gangrenous.

ETIOLOGY.

In considering the etiology there is one anatomical fact we must call to mind. The main duct of the pancreas, the canal of Wirsung, extends from left to right gradually enlarging until at the neck of the gland it changes its course and turns downwards and backwards. Just before reaching the duodenum it unites with the common bile-duct to form the Ampulla or Diverticulum of Vater, which opens into the posterior part of the duodenum.

Experimentally pancreatitis has been produced upon animals by injecting the duct of Wirsung with various substances, dilute acids, dilute alkalies, suspensions of bacteria, artificial gastric juice and lastly bile. This last experiment was suggested to Opie by the fact that in one case when a stone had become lodged in the diverticulum of Vater closing the opening into the duodenum, the bile was traced along the canal of Wirsung, and that acute hemorrhagic pancreatitis had developed. He then tried injecting bile into the pancreas of dogs and produced acute pancreatitis in each instance. Thus where a stone lodges in the ampulla, closing the opening into the duodenum, yet of a sufficiently small size or of such shape as not to occlude the duct of Wirsung the force of bile flowing into the common duct being slightly greater than the force of the pancreatic secretion, bile will flow into the pancreas, thus setting up acute hemorrhagic pancreatitis.

Opie reports that in thirteen recent cases of pancreatitis in which there were autopsies, in ten gall-stones were found. Thus it will be seen that there is an undoubted relationship between gall-stones and acute hemorrhagic pancreatitis.

Chronic indigestion, alcoholism, syphilis and traumatism are also said to be etiological factors, but gall-stones

and traumatism are the only causes which have been proven to produce acute hemorrhagic pancreatitis.

Pathologically the gland is much enlarged, its color changed to a dark red or mahogany. The whole or only parts of the gland may be involved, adhesions may have formed to surrounding tissues. The abdomen generally contains bloody serum, and the areas of fat necrosis may be apparent in the abdominal or omental fat.

Suppurative pancreatitis resembles suppuration in other organs, as the liver for instance. There may be abscesses of varying size and extent.

Gangrenous pancreatitis, according to Fitz, is usually the result of hemorrhagic pancreatitis. "The organ is enlarged, often soft and pliable, and of a color which varies from a mottled red and gray to a dark brown and black."

MICROSCOPICALLY AS DESCRIBED BY KORTE.

"The interstitial tissue is infiltrated with round cells. There is an escape of blood. In some cases the interstitial tissue proliferates so that the lobules of the gland are separated from one another. The fat frequently present in considerable quantities between the lobules of the glandular tissue contains foci of necrosis. The acini show fatty degeneration and in many cases partial or complete absence of nuclear stain indicates the death of the cells. Over a considerable area glandular tissue may have undergone such change that epithelial cells are no longer recognizable."

Symptoms. There is usually the preceding history of attacks of biliary colic. The symptoms generally begin by severe sudden pain in the epigastrium accompanied with vomiting and extreme collapse, which is very characteristic. The pain is of an agonizing character and may extend through to the back, and is increased by movement. Constipation is obstinate. The facies are those of abdominal trouble, resembling those of peritonitis or intestinal obstruction, for which this condition is

frequently mistaken. The pulse is rapid and feeble. The temperature may be normal, subnormal, or elevated. The abdomen is distended and tender over the epigastrium, the recti muscles rigid and boardlike. Jaundice is frequently present. The urine may contain albumen and casts, but glycosuria is an unusual symptom. The stools, if obtained, are generally normal. Death frequently comes on from the second to the fifth day, although life may be prolonged and it may pass on to the gangrenous form. Sometimes recovery occurs.

In the diagnosis Fitz's rule should be borne in mind. "Acute pancreatitis is to be suspected when a previously healthy person, or sufferer from an occasional attack of indigestion is suddenly seized with violent pain in the epigastrium followed by vomiting and collapse, and in the course of twenty-four hours of circumscribed epigastric swelling, tympanitic or resistant with a slight rise of temperature."

A differential diagnosis must be made from intestinal obstruction, perforating gastric ulcer, ruptured gall-bladder, cholecystitis, and gangrenous appendicitis.

As a matter of fact the diagnosis has seldom been made and operation has almost invariably been undertaken for one of the above conditions.

Treatment: Is simply surgical, opening the abdomen in the median line under a local anesthetic if patient is in too collapsed a condition to allow a general anesthetic. Simple drainage has in several such instances resulted in a cure. It may be necessary to incise the gland. If this is done the general cavity must be protected to prevent the escape of pancreatic fluid into the general peritoneal cavity.

The history of the case I have to present is that of a woman thirty-seven years old, married, occupation, housewife.

Family history unimportant.

Personal history. During the past four years she has had numerous attacks of pain in the epigastrium, accompanied by nausea and sometimes vomiting. Some of the attacks have been so severe that two hypodermics of morphine were necessary before the attack subsided. Others have been of a milder character. During the past year they have been more frequent, occurring about once a month. They were considered by Dr. Elmer, who attended her in several attacks as typical of biliary colic. Has always been of constipated habit.

Personal inspection. The day before the patient was seen by me, which was October twelfth, 1903, she was seized with a severe attack of pain in the epigastrium, extending through to back. Prostration at this time was moderate. Hypodermic of morphine relieved the pain. The patient was in New Britain but recovered sufficiently to come to Hartford the following day. Upon her return, I was called and found her very comfortable, in only slight pain, almost no tenderness over epigastrium. The following morning, October thirteenth, I was summoned by the husband, with the message that his wife was dying, "Come at once." They had also called Dr. Elmer, who was there when I arrived. The patient was suffering intensely, face blanched, pulse hardly perceptible, extremities cold, and in condition of complete shock. The pain was located in the median line over the epigastrium and in the back directly opposite, not over the region of the gall bladder.

Personal examination showed the patient to be a well-nourished woman, but quite anemic. Heart and lungs were normal. The epigastrium was boardlike in hardness, due to rigid recti. Dr. O. C. Smith was called in consultation, and it was decided to operate at once, for gall-stones or perforated gall-bladder as we supposed. The operation was performed by Dr. Smith, assisted by Dr. Elmer, Dr. Bell and myself.

OPERATION.

An incision four inches in length was made through the right rectus muscle beginning at the tip of the tenth costal cartilage. Upon opening the peritoneum we found a considerable quantity of bloody serum. The gall-bladder did not at once appear in the wound but finally after liberating fresh adhesions which bled profusely we came upon a firm dark red substance which we at first thought was the inflamed gall-bladder. This was brought up to the edges of the wound by sutures passed through its substance and incised. Such hemorrhage as then occurred I do not care to see again. This proved to be the head of the enlarged and hemorrhagic pancreas. The gall-bladder was then palpated and found to contain no stone. The ducts were not palpated. A small piece of the mass was removed for examination. The hemorrhage was controlled by ligatures and clamps left on. The patient was then put back to bed in an exsanguinated condition, and after vigorous measures responded to treatment. For several days the patient remained in a critical condition. Upon the tenth day a profuse secondary hemorrhage occurred which sent the pulse up again to one hundred and fifty. On the fourteenth day two large sloughs separated from the bottom of the wound. From this time on the patient made a slow but complete recovery, and is perfectly well except for a pancreatic fistula which even now secretes pancreatic fluid having to be dressed twice a day.

Microscopic examination of section by Dr. Steiner showed it to be acute hemorrhagic pancreatitis.

REPORT OF A CASE OF MYXEDEMA SUCCESS- FULLY TREATED WITH THYROID EXTRACT.

J. B. BOUCHER, M.D.,

HARTFORD.

Mrs. M., age thirty-eight, consulted me last October for her then present condition, with the following history. Family history negative, three sisters well and in good health. Patient married, had no children. She had been in excellent health until she was twenty-four years of age, when she noticed some swelling of the face and limbs, some pain, a tired, dull, stupid feeling most of the time, loss of ambition, shortness of breath, etc. Her symptoms continued to increase and her general condition became worse until she was confined to her room and bed most of the time. I saw her in October, 1903, when I obtained the above history. She stated that during the fourteen years she had treated with twenty-four different physicians, who nearly all agreed, it was a case of chronic Bright's disease. Various lines of treatment had been followed without relief. In addition to the above history the patient presented the following symptoms: Her entire body, face and limbs were badly swollen, the swelling was firm, inelastic, and did not pit on pressure. A general dry, scaly, condition of skin was found all over the body; but especially marked on hands and arms. The color of the skin was a yellowish white covered with brown, with two bright red spots on the cheeks which looked like artificial coloring. There was a local tumefaction of skin and subcutaneous tissue, with prominent pads in the supra-clavicular region. The teeth were absent, the hair all over the body had fallen off leaving only a small amount on the scalp necessitating the wearing of a wig.



The abdomen was enlarged, appearing nearly as large as an ordinary pregnancy. The physiognomy was changed as you will notice in the picture. The features were coarse and broad, the face-lines having been obliterated by the swelling of skin and subcutaneous tissues, the lips were thick, nostrils broad and thick and the mouth enlarged. There was a painful slowness of thought, speech, and movement. When I asked her a question she would look at me in a dull, listless way, and after several seconds she endeavored to answer in a slow hesitating manner, dragging her words. She could with considerable difficulty move about the room in a slow, unsteady manner, dragging the loins. She could not go up or down stairs, and very little exertion caused great exhaustion.

She complained of being cold all the time, even in the warmest weather in summer her temperature was slightly sub-normal. The heart was rapid and weak, but showed no organic change. The lungs, liver and spleen were apparently normal. The kidneys showed some disturbance with their function. Sp. gr., 1018, some albumen, some fatty, hyalin, and a few granular casts. Menstruation had been suspended for several years.

Blood examination showed the following: Hemoglobin 60%, red cells 3,362,500, white 5,450, polynuclear's 74%, large lymphocytes 16%, small lymphocytes 10%.

No deformity of blood-cells was noted. Her appearance would indicate a weight of one hundred and seventy pounds to one hundred and eighty pounds.

A diagnosis of myxedema was made and treatment commenced immediately with thyroid extract. Burroughs, Wellcome and Co.'s tabloids were used exclusively. Beginning with a five grain tablet the dose was increased daily until the patient was taking forty grains per day without any apparent ill-effect.

The result of treatment was simply marvelous, inside of two weeks the improvement in the patient's condition

was noticed even by her family. This improvement continued steadily until at the end of ten or twelve weeks the patient's condition was nearly normal. The dry, rough, scaly, yellow skin had given way to a soft velvety pink. The hairy portions of the body were covered with a new growth of hair. The scalp and eyebrows were covered with a thick growth of hair which promised to become normal. The nails which were dry, rough, and thickened became smooth and shining. The swelling had entirely disappeared so that the face again resumed the normal expression. The voice was clear, the speech and intellect quick and active. The patient's weight was now one hundred and twenty-five pounds, the enlarged abdomen was reduced to normal, with entire absence of the prominent supra-clavicular pads. She began to take long walks and active exercise, and finally her physical and mental condition became perfectly normal.

There was such a complete change in her appearance in four months, that many of her friends who had not seen her during her treatment, failed to recognize her.

During the early part of March, six months after beginning treatment we had reduced the quantity of "thyroid" to two tablets a day which seemed to be sufficient to maintain the function of the atrophied gland.

I intended having her photograph at that time, but unfortunately postponed it for two weeks till I returned from my vacation. The day of my return she was on the street, but feeling badly, consulted a physician who advised her to go to bed and prescribed for her. I saw her the same evening with all the symptoms of a severe pneumonia. Temperature $104.1-2^{\circ}$, pulse 140. She died within eighteen hours, from lobar pneumonia. The photograph which I have presented you was copied from one taken just before her illness, which gives you a very fair idea of how she looked after recovery.



THE DIAGNOSIS OF SYPHILIS.

MARCUS T. BULL, M.D.,

NAUGATUCK.

In my estimation the diagnosis of Syphilis is one of the most important a doctor is called upon to make; there may be others of equal or greater gravity but when you consider the power for weal or woe which a mistake in diagnosis of this disease has viewed in its personal marital, hereditary and sociological aspects we realize the immense importance of a correct diagnosis.

It is especially important because if a diagnosis is made much can be done for the patient—many other diseases of comparative personal gravity such as epilepsy, tabes, apoplexy, cancer, phthisis, etc., are or have been the despair of the therapist. But syphilis is a disease in which the difference between proper and improper treatment or none at all is often the difference between comfort and horror, happiness and despair and even, perhaps life and death.

Another very important reason is because of the involvement of innocent parties—much of which may be prevented by a correct diagnosis of the original sore or the primary eruption. Some other diseases of equal gravity may be comparatively innocuous to others—but the number of absolutely innocent people who are annually inoculated with syphilis is considerable. And so because of these two reasons as well as because the cases usually go first to the general practitioner it is very important that he be able to recognize and differentiate syphilis in all of its forms, stages and manifestations.

To undertake to give all the rules for the diagnosis of syphilis in the course of twenty minutes would be about as easy as to give a complete treatise on the moral law

in the same time. It can't be done and so I have concluded simply to call your attention to some general principles of diagnosis and to enumerate in chronological order or partly so the suspicious symptoms which should open a man's mind to the fact that he may have a case of syphilis to deal with.

And when the suspicion is present I can recommend the tables of diagnosis which are found in almost every treatise on the disease as being generally well gotten up and fairly reliable and usually a diagnosis may be worked out and established from them. But whenever a man has an undoubtful case of syphilis I recommend that he spend much time and study on each case as on a subject on which he must pass an important examination—a man's store of available knowledge of the disease may be greatly increased in this way.

Almost all tables of diagnosis begin by "History of exposure." That looks very well in print but when a doctor attempts to secure it he will think he is practicing among the most virtuous people on the face of the globe. The history is often hard or impossible to get. A subterfuge which I have often used to elicit it is to tell the patient that it makes very little difference to me but is of vital importance to him on account of the treatment—that my opinion of him or humanity in general will not be lowered much and that his best interest demand the truth in the matter.

Approached in this way I have often secured a coveted history that no amount of direct questioning would produce. I have often made the remark to patients that were the Angel Gabriel to appear with the same symptoms I must ask the same questions—and while a man may sometimes lose a patient by being considered too inquisitive still he may often clean up a doubtful diagnosis in this way and save himself the shame of making a great mistake.

And again to paraphrase a celebrated saying: "The

right of suspicion should not be denied to any one on account of position, wealth or former condition of respectability." While syphilis is more common among those of certain races, nations or stations in life there is no one who should be dismissed as an impossible subject for the disease. The known harlot or libertine or lasher on the face of it are more liable to syphilis than those of a quieter disposition but never rely on this point entirely as many surprises will come to the doctor in a lifetime if he does.

And now in regard to the suspicious circumstances which should put a doctor on his guard.

First and foremost is naturally any sore or eruption on the privates. Bear in mind that the most innocent-looking sore may be or may develop into a full-fledged Hunterian Chancre. The most common non-specific sores on the genitals are herpes, abrasions from scratching, the bites of the itch mite, pediculi, bed bugs or mosquitoes, venereal warts, chancroids and I have seen a few cases of eczema and psoriasis of the penis which were puzzling, but for the presence of the disease in an undoubted form on other parts of the body. The diagnosis from each of these conditions is generally easy, but is too long to go into details. But remember that mixed chancres are quite common and for a long while made the separation of the specific sore from the chancroid in the minds of medical men impossible.

Also remember that one of a number of undoubted herpes may later take on a specific action and grow to be a typical hard sore. I recently had a case of this kind which was most puzzling as I had treated the patient about a year before for herpes preputialis—he returned with another attack of about a dozen vesicles, all of which except one healed all right in a few days. This one would not heal and soon the secondary symptoms developed much to the disgust of the patient.

Remember also that there may be cases of tertiary

syphilis of the penis. I have seen good men puzzled by this and was only able to make the diagnosis when the patient confessed to having had syphilis ten years ago and the sore healed up like magic under specific treatment. And always bear in mind the not infrequent occurrence of extra-genital chancres. I have seen several of these, two in physicians. They are always very puzzling and difficult to diagnose until the appearance of the secondaries. I recently had a case of a patient with an enormous chancre of the lip—she had consulted three doctors, one regular—one homeopath and one eclectic. They all three wanted to lance it which on the face of a beautiful woman would have been a great mistake.

By placing her in a good light and standing some distance away I was able to make out the first appearance of the secondaries on her chest—they came out with a rush next day thus clinching the diagnosis—the lump as large as a walnut was entirely gone in two weeks, but was followed by a case of unusual severity which for some reason is the rule with extra-genital chancres.

Second. The occurrence of almost any skin disease should put a doctor on his guard as there are very many which greatly resemble syphilis—so much so that in former times the various manifestations of syphilis were spoken of according to the variety of non-specific disease they most resembled as syphilitic acne, syphilis psoriasis, syphilis lichen, syphilis lupus, etc. This nomenclature has largely been given up at the present day as it is unnecessary and confusing. There are about two hundred divisions and sub-divisions of skin disease described in a representative work of the present day and syphilis in some of its varieties or stages will imitate nearly all of them.

Many or most cases of skin disease to a trained eye at once declare themselves, but I once saw at a meeting of the New York Dermatological Society a room full of professors of dermatology disputing as to whether a given

case was specific or not. Also bear in mind that a man may have any skin disease and syphilis as well—there is nothing about syphilis which protects one from any other skin disease—and when you see as I did recently some slight tertiary syphilis—some eczema and some scabies, all on the arm of a beautiful, refined lady, it is enough to make a diagnostician shudder.

There are, however, a few general characteristics of the syphilides which it may be well to call attention to as it is manifestly impossible to construct a diagnostic table for each of the many varieties.

1. They generally follow a sequence in the order of their eruption macules, papules, and perhaps small pustules early in the disease while nodules, tubercles, rupia, ulcers cicatrices and pigmentation come later.

2. They are usually non-pruriginous, a very important point and one that I wish every doctor would remember. Sometimes there may be a slight itching and the borders of an ulcer may itch from the irritation caused by the discharge, but as a rule the syphilides do not itch.

3. They are polymorphous—many kinds of dermatoses stick close to one type macule, papule or pustule, but the syphilides may present several varieties at the same time on an individual.

4. They are more or less symmetrical that is liable to occur on both sides of the body at the same time especially at first—this characteristic is to a large extent lost later in the disease.

5. They are said to have a peculiar color. As a matter of fact at different stages of the disease and on individuals of different degrees of pigmentation they will develop almost any kind of color that any skin disease will. However, they do often have a somewhat characteristic raw ham or coppery color and the later stages of the disease may be accompanied by ulcers, cicatrices and pigmentation which all have peculiar characteristics, but which we have not time to describe.

6. The lymphatic glands of the body are generally enlarged in syphilis so when you have a case of this kind always bear in mind that it may be specific. There are several other diseases that enlarge the lymphatic glands, tuberculosis, poisoned wounds or any inflammation in territory tributary to the gland and especially several blood diseases. But the fact of a general enlargement of the glands is a strong presumptive evidence of syphilis.

7. The occurrence of sores or mucous patches in the mouth or throat is always suspicious. They may be confounded with herpes, abrasions, stomatitis, aphthae, etc., but from whatever cause due they should always make a man think of the possibility of syphilis.

And in this connection the occurrence of leucoplakia and syphilitic disease of the tongue should always be remembered. It is not very frequent, but when seen should make one think of syphilis as a probable cause.

8. A very frequent concomitant of syphilis is headache especially coming on late in the day and lasting till one goes to sleep at night. I have several times had my attention drawn to syphilis by this symptom which was promptly removed by specific treatment. So if a headache persists and the usual remedies are of no avail remember that it may be specific.

6. Iritis especially and other diseases of the eye are often due to syphilis. It is said that over one-half of the cases of iritis are due to this cause. So on the occurrence of this disease the most careful inquiry should be instituted and specific treatment immediately begun if it is proved to be of syphilitic origin.

10. The occurrence of nodes, especially on the tibia or calvarium, of tubercles or tumors on the skin, muscles or internal organs is often due to syphilis and should arouse suspicion in the mind of any doctor called upon to diagnose any such condition. A whole array of causes

may be evoked for some of these conditions but always have in mind the fact that the cause may be specific and so eliminate that possibility before proceeding to more radical measures.

11. Intractable ulcers anywhere except on the lower half of the leg should always raise the question of syphilis. The ulcer may be due to many other conditions such as varicose veins, lupus, trauma, tubercle or cancer. But inasmuch as very many ulcers are syphilitic it is well to keep in mind the fact that the one in question may be. The diagnosis of specific ulcer is as a rule easy, but we have not time to go into details. The scars, pigmentation and keloids left after specific ulceration are all more or less characteristic and valuable signs of past or present syphilis.

There are a large number of syphilitic affections of the nervous system which are of diagnostic value, although sometimes they happen late in the disease and so are not of so much use as the symptoms which come earlier. However, the headache and osteoscopic pains of early syphilis are of diagnostic value and their occurrence should be kept in mind. Locomotor ataxia is my strong presumptive evidence of syphilis, just how strong the authorities differ from thirty-six per cent. to one hundred per cent. with an average of about eighty per cent. Starr says that syphilis occurs in about twenty per cent. of other forms of spinal cord or nervous disease.

The occurrence of apoplexy is said to be often due to syphilis indtentis. In this disease also authorities differ greatly as to the proportion of cases where a specific cause may be evoked but it is certainly very large and much greater than the proportion of syphilitics to the general population.

There are many other nervous diseases of which syphilis may be the cause—and many of the great number of affections due to irritation or paralysis of special nerves or special senses have a very strong predisposing cause

in the previous occurrence of syphilis. But the subject is altogether too great to be more than alluded to here.

12. The occurrence of necrosis or ulceration of the bones or cartilage is very often due to syphilis and each case needs investigation with that end in view. The dropped-nose where the nasal bones or cartilage have been eaten away is very apt to be of specific origin.

13. The value of the sign known as Hutchinson teeth where the edges of the two middle upper incisors are chisel shaped serrated or lined is uncertain; by some considered almost diagnostic of hereditary syphilis and by others disputed. I have seen many cases of the teeth but am unable to say just what proportion of the patients had syphilitic ancestry.

14. The occurrence of snuffles, wasting marasmus and ulcerations in very young children all point strongly to syphilis and should put a doctor on his guard.

15. Abortion in syphilitic women is very common and the occurrence of it especially more than once should cause a doctor to keep his mind open for other signs of greater diagnostic value.

16. Onychia and dactylitis are rather rare manifestations of syphilis but sufficiently common to occasionally be of diagnostic value. So when you have cases of ridging, grooving or honey-combing of the nails, or swelling of the individual phalanges without evident reason look out for syphilis.

17. The occasional occurrence of syphilitic orchitis and epididymitis should also be remembered.

There are many other manifestations of syphilis of diagnostic value but we have not even time to refer to them. There is one very important method of diagnosis which we must allude to namely, that by treatment. That is if you have any manifestation you consider specific try the effect of treatment pushed if necessary to extreme. This as I said before is a very important

way and will do more to condemn or corroborate suspicions founded on the various manifestations I have described than any other one thing. The greatest trouble with this method is that large doses of iodide of potassium also benefit lymphatic derangements from other causes—swellings of the testicle and epididymis—enlargement of the bones and joints, rheumatism, sciatica and other nervous affections, and so in these diseases is not entirely reliable. A better way is to use mercury which is not so apt to help worst syphilitic affections.

And now gentlemen, we have briefly indicated the more prominent symptoms of syphilis and especially those which should put a man on his guard and not allow him to let a single case pass him at least unchallenged. And when your attention is arrested by any symptoms try and see if other suspicious ones can not be elicited either by careful questioning or by stripping the patient. Many primary and secondary stages of the disease are very mild and the patient may be entirely unconscious of the fact that anything of the kind is present. And so it is only when some obscure testinary lesion appears that the doctor is called upon to diagnose.

Remember that while there are some cases perfectly patent to any one of the least medical erudition there are many which will tax the diagnostic skill of the most astute.

It is of vast importance to the patient and some little to the physician's reputation and pocketbook that if the disease be present the proper diagnosis be made. So never allow yourself to be hurried into one diagnosis or the other. Take plenty of time, wait for symptoms if necessary. Generally the patient will stand this if they know what is suspected because many of them know just enough about the disease to dread it as much as the doctor would burning at the stake. So remember Crockett's golden rule, "First be sure you are right and then go ahead," and when you are firmly convinced in your own

mind of the fact, don't let any consideration of friendship, interest or respectability change your opinion.

There are few questions a doctor is called on to decide of more importance to the patient, his family and friends than this one and in my experience it has elicited some very solemn scenes when I was finally called on to make the diagnosis. The shock may be diminished or the blame attached to a consort much lessened by dilating on the various innocent ways of acquiring the disease, in a water closet, by a hired bathing suit, public bath, or sometimes I tell patients they need look no further than the handle of the next door knob to acquire any disease germ they want. If the doctor does wash his hands after an examination the patient seldom does and may leave any germ in the category right where the next hand will embrace it and carry it to any part of his economy.

If you save a patient's "face" in this manner in time they may become better acquainted and tell you the true story of how the disease was acquired and when you finally have the truth you will be struck by the fact that there is a marked similarity in the way ninety-nine per cent. of syphilis is acquired.

We have been compelled in writing a paper on such a large subject to omit very much which we would like to have expressed. We have endeavored to draw from our own experience rather than from text-books or authorities. If the members of the society can corroborate or "clinch" any of the statements we have made we would be glad to have you do so. If our experience or observation has run contrary to yours please don't hesitate to say so for I am sure that in medical matters the great desideratum is the truth, the whole truth if possible and certainly nothing but the truth.

PROGNOSIS OF SYPHILIS.

THOMAS H. RUSSELL, M.D.,

NEW HAVEN.

In nearly all diseases we consider statistics of great value as a basis for prognosis. The saying that nothing is so deceptive as facts except figures would appear to be more applicable to statistics of syphilis than to any other subject. Such a large number have the disease, among all classes of the population, that there is no way of ascertaining, even approximately, the number who have at some time suffered from it, as a basis for comparison with any number who may, or may not, recover. Many of the symptoms, so varied are its manifestations, may not be noticed by the patient, or correctly diagnosed by the physician. As it may impair any organ or structure of the body, such patients, on this account, usually consult a number of medical attendants; for the cutaneous symptoms he consults a dermatologist; if it affects the eye, he leaves the first and seeks the advice of an ophthalmologist; when it causes deterioration of his nervous system, he transfers his case to a neurologist. All of its victims are so anxious to conceal the fact that they have had syphilis that statistics of life insurance companies are unreliable and in the death-records the cause of death is made to appear under some less objectionable name. The same may be said of hospital statistics and those of foundling asylums. All statistics, therefore, are unreliable as a basis for prognosis. Bacteriology and pathology are, up to the present time, of little or no assistance in proving the presence or absence of this disease. Any statement, therefore, as to prognosis can only be considered as approximately correct.

Even the statements of experience of physicians as to prognosis of syphilis are not reliable and conclusive, because it too often happens that the first medical attendant makes a diagnosis and prescribes specific treatment too early, upon the first appearance of a venereal ulcer which resembles the initial lesion, and on insufficient evidence that the disease really exists, not waiting, in doubtful cases, for the secondary confirmatory symptoms, and thus having removed or prevented all objective evidence of the disease, the next physician must be influenced, sometimes erroneously, by the patient's statement as to the first physician's diagnosis. I believe that as a result, some patients treated for this disease never have it. The first attendant, who had the best opportunity for diagnosis, which would have been made easy by waiting for positive cutaneous symptoms, has made his diagnosis before the symptoms warranted his doing so, and has thus caused confusion and uncertainty.

As the primary ulcer is sometimes not characteristic, any physician greatly wrongs his patient who, until the evidence is conclusive, pronounces the patient affected with syphilis and puts him on mercurial treatment, for he introduces uncertainty in both diagnosis and prognosis.

Patients with this disease, more than in any other class, are unreliable in their statements, either intentionally or through lack of accurate observation of symptoms. As patients of this class are well known to be unreliable in all ways, changing from one doctor to another before complete recovery is attained, and all who have it especially desire to conceal the fact, and as years of treatment are required to attain complete recovery, for these and other reasons, statistics, or even the personal experience of physicians, are less reliable as a basis for prognosis of this disease than in any other.

The degree of severity of the initial lesion does not enable us to make a prognosis with any degree of cer-

tainty, as to whether the disease will be mild or severe. A very slight initial lesion may be followed by the most severe and characteristic symptoms.

Age and sex and other conditions influence prognosis. Children who become infected will suffer from it severely. Advanced age also tends to render its course more severe. In women it will usually pursue a milder course than in men. Bad hygienic surroundings, lack of food, or imperfect assimilation, or previous ill health from almost any cause, will aggravate the course of the disease. Dissipation of all kinds, overwork, irregularity as to food and sleep, all influence the prognosis unfavorably. The use of tobacco seems to aggravate the disease as far as the symptoms are located about the mouth and throat. The more vigorous and healthful any individual is, the better will he be able to recover without any permanent impairment.

To some extent, the prognosis as to the organs which will suffer most severely may be made. Those structures which have been previously most impaired and below par are attacked most destructively. Thus, if from any cause the patient's nervous system has been previously enfeebled in any way, the disease will be especially likely to leave the patient seriously below normal as to his nerve centres. Tuberculosis more than any other condition predisposes the patient to suffer from syphilis disastrously.

I believe that we have good reason to tell patients having the acquired form, that they can be completely cured, if they conscientiously and without intermission will carry out all the necessary details of treatment as long as the physician considers necessary. The great length of time required causes many, sooner or later to become negligent in carrying out the necessary directions and during such a long period of time, possibly change of residence or other unavoidable causes, may interrupt. Thus, the prognosis as to complete recovery in the short-

est possible time depends mainly upon whether we have a patient who has sufficient will power to be faithful throughout all details of treatment, and he must be made to understand that his recovery depends upon his doing so. Where the result is not completely satisfactory, I think it is mainly due to the patient being remiss in some way.

Prognosis is fully as good when delayed until the first cutaneous symptoms appear as when it is commenced upon the first appearance of the initial lesion. This being so, I believe that any physician greatly wrongs his patient who launches him upon the prolonged treatment necessary for this case, if he has the slightest doubt about the character of the initial lesion, until the confirmatory cutaneous symptoms remove all doubt as to the diagnosis.

Not only the initial lesion always exists, but the enlargement of lymphatic glands must always inevitably follow, and cannot be prevented. Secondary symptoms are also inevitable to some extent, unless treatment has been commenced at the first appearance of the initial lesion and carried out vigorously. Under treatment, its external manifestations can be made to disappear early. As to the tertiary stage, those patients who have maintained, from an early period, constant and judicious treatment, will not, with few exceptions, develop any tertiary symptoms. It has been stated that only from five to fifteen, or at the most twenty per cent. develop any tertiary symptoms.

The date of the appearance of the tertiary symptoms has been variously prognosticated as being from three to twelve years from the date of the initial lesion, although they have been seen forty or even sixty years after the initial lesion, and they have been said to have been most frequently noted between the ages of twenty-five and forty-five years of age. It is not possible to predict how long the tertiary stage may continue. This stage begins

insidiously and obscurely, and we cannot fix the exact date of its appearance in any case. While appearing upon the surface, it may be recognized early, yet appearing in the brain or cord, or some other internal organs, its first symptoms are very obscure and therefore may not be correctly diagnosticated, and resisting medication, may continue until death results from extension to some vital organ.

Even if recovery takes place, the prognosis must have reference to possible permanent disfigurement or serious organic impairment.

When treatment is commenced at or before the appearance of the earliest secondary symptoms and judiciously and persistently carried out, as is always necessary, many patients absolutely and completely regain their health; but many, especially among the lower classes and less intelligent, become at times neglectful of treatment, as the disease is not one which usually causes, at least during its earliest stages, any pain or marked discomfort, and as they see the visible symptoms disappear under treatment, they are liable to suspend medication, thinking it no longer necessary. Many of these, as a result of irregular and insufficient treatment, are left anemic and below par as to bodily health, and become more liable to succumb to other diseases. In these cases, often, the disease leaves on the surface unsightly and permanent scars, partial destruction of the eyes, nose and external ear, or perforations of the palate. But more serious than these, as affecting the health of the individual permanently, are the visceral lesions which may be found in many of the internal organs, and which are very liable, in spite of all possible treatment, to leave the individual permanently impaired, leaving the organs involved so permanently altered as to their structure that they cannot again perform their functions normally. This is seen especially in diseases of the nervous system. Where it involves the spinal cord and brain, we find it

producing permanently, in a more or less degree, loss of vision and paralysis of various important functions.

It is impossible to rely upon statistics with any degree of confidence as to the death-rate from this disease, for when it does cause death, it does so at such a prolonged period after the initial lesion, and usually producing such well-marked disease of some internal organ important to life, that the physician would generally enter the cause of death on his certificate as disease of that organ, without being able to trace its origin to syphilis; or if he was able to do so, would, out of regard for the friends or family, not record syphilis as the cause. It seems fair to consider that this disease is responsible for more deaths than statistics would indicate, although while in its worst forms it severely disfigures and cripples, it rarely actually destroys life. One reason further is that the victims of the acquired form of the disease are at that stage of life when they are most vigorous and in condition to withstand its ravages most easily. Another is that the facilities for treatment are within easy reach in hospitals and dispensaries.

Some of us must remember instances to prove that even the severe tertiary form of the disease is sometimes not incompatible with long life. Within a few weeks, I passed upon the street an old man who had lost a considerable portion of his nose, and whom I at once positively recognized as having been under my care with a severe tertiary form of the disease twenty-seven years ago. He was then a long time under supervision, and had lost part of his nose from the ravages of the disease, and I am sure that at that time no one would have considered the prognosis favorable. He was even then apparently middle aged, and when I saw him the other day walking along Chapel street, he appeared to have as good a prospect for length of life as any man of his age.

It may be interesting to know how life insurance companies regard the prognosis of this disease as shown by

their acceptance of such patient as insurable. Quoting from some investigations by Samuel Treat Armstrong, M. D., it would appear that thirteen out of seventeen life insurance companies accepted persons as insurable who had had this disease some years before applying for insurance. Two companies replied that they rarely accepted such risks, and two others that such risks were very rarely accepted, the acceptance of such risks depending upon the good health of the individual previous to the attack and its having been of a mild type, and its having been thoroughly and for a long period under treatment, and the patient having been free from any suspicion of returning symptoms for some years afterward, in one case seven and in another three years being required to have elapsed after the initial lesion. In general, it would appear that a considerable proportion of companies did not reject patients who have had this disease unless they have had it in the tertiary form, and that they considered the mortality of the disease small. It has been stated that European companies occupy the same position on this question.

The chief questions in prognosis are:—

First. Can a man who has had the disease ever become able to marry without transmitting the disease to wife and children?

Second. If so, when can he expect to be able to marry?

These are among the most important questions which any physician can be called upon to decide. The penalty of an error in deciding these questions as to marriage are so grave and far reaching that they must be considered very seriously. No disease is so fearful as this in possessing such power of hereditary transmission combined with contagiousness. The object of marriage is the perpetuation of the race and associated with this are the happiness and welfare of the family.

As long as it continues, this disease more than any other is antagonistic to the perpetuation of the race.

We know how almost certain it is to destroy the life of the fetus, or at least to transmit to those children who unfortunately survive their birth the indelible stamp of its degenerating influence, which the individual must bear through its miserably unhappy life, and through hereditary and other influences, produce far-reaching unhappiness which no one can measure. This disease also undermines all the secondary and lesser objects of marriage, as the social aspects, health and happiness of the family.

I believe that we are warranted in telling the patient having this disease that if he faithfully carries out all necessary treatment, there is almost a certainty that the time will come when he can marry without transmitting it. A favorable prognosis must be based upon time, as well as treatment, for the transmissibility of the disease diminishes with lapse of time.

As to the length of time, under careful treatment, before a patient with this disease can be permitted to marry, it is not possible to fix precisely the minimum. While the disease usually follows a nearly uniform evolution, considerable variations as to form and duration introduce some degree of uncertainty as to its course and duration, and makes it impossible to fix the exact date when the disease ceases to be transmissible.

While probably few, if any, doubt that syphilis is caused by bacteria, and a bacillus of the disease has even been described, it is not yet possible to prove by any bacteriological process the presence or termination of this disease. We cannot yet, as in diphtheria, by bacteriological examinations, state that now and not before, the time has arrived when all restrictions can be removed from the patient and he is no longer a source of danger to others. Some of us will doubtless live to see the time when syphilis will rest upon such a well-understood bacteriological basis that its progress and duration can be stated with a great degree of precision, and when

we can say to any such patient contemplating matrimony, just now you can safely marry and could not have done so at any earlier date.

As the time cannot be fixed with precision and the penalty of an error is so serious to innocent persons, we must err, if at all, on the side of making the period too long rather than too brief.

I believe we ought to require patients to be under specific treatment, faithfully carried out, for three years, and then, medication being omitted, to remain free from all symptoms of the disease for at least two years, before we cease to advise against marriage. Then, in the great majority of cases, of ordinary severity, the disease will not cause trouble. Rare instances have been recorded indicating that the above requirement of five years cannot be guaranteed as an absolutely safe limit, and it is advisable to add that the longer marriage of those having syphilis is delayed the better. We should inform the patient that no method is known by which he can be positively proved to be permanently cured. We should give no positive guarantee nor assume any responsibility as to his marriage, and can only state that the danger is very slight after five years successful treatment and freedom from symptoms combined. Some physicians might authorize marriage in a shorter time, but there is no justification for assuming any risks in such a matter as this. After we have fully explained the chances to the patient, we must leave him to bear the responsibility of marriage and its results.

There is no disease which parents who have it will so surely transmit to their children. Even during the active stage of syphilis, the procreative power of the male parent will not usually be diminished, unless the disease has produced local lesions in the testicle or epididymis. The disease will rarely at any stage produce any diminution of the conceptional capacity of the woman. It will constitute no barrier to conception.

Statistics indicate that if the parents have the disease, the chances will be about three to one that the child will die in utero before its birth. Hereditary transmission of the disease, especially from the mother, may continue even after the contagious stage, and all other manifestations of the disease, have ceased.

Of the small number of syphilitic children who survive their birth, one-third will die within six months. If the child with the hereditary form of this disease survives, the prognosis for its future will be very unfavorable, and presents a strong contrast to that of the acquired form. We can predict that it will be more severe and disastrous than the acquired form, affecting the health and development of the individual profoundly, producing such serious organic disease of important organs, especially the nervous system, as will tend strongly to an unfortunate result.

THE SO-CALLED ANTEMORTEM STATEMENT.

D. C. BROWN, M.D.,

DANBURY.

Mr. President & Gentlemen of the State Medical Society of Connecticut:

If you have frequently heard use made of the term, "An Antemortem Statement," it carries to your mind a definite meaning, which you may never have thought of questioning. When my attention was first called to the subject, I turned to works on Legal Medicine, without the slightest misgiving, but I should find a full account of the term; how such a statement was taken, why it was taken and what were the requirements to make it admissible as evidence in a Court of Law. I had always thought that an Antemortem Statement was as much a perquisite of our profession as a Postmortem Examination, so you may judge of my surprise when author after author was consulted and no mention could be found of the subject. Current medical literature was equally uncommunicative on the subject, medical dictionaries gave no help and "The Century" simply defined an Antemortem Statement "as existing or occurring just before death. So far as I was able to learn, the Medical Library gave no reference to the term.

With the Legal Libraries it was different. All books on evidence make reference to the statements made by dying individuals, but refer to them as Dying Declarations and as the phrase seems to belong to our brethren of The Law and the Courts of Law pass final judgment on the question it would seem to be wise for us to accept their term and abandon the one that has been in such common use and yet does not carry the explanation

of itself to the common mind that the legal term does. Without more argument I shall abandon the term *Ante-mortem Statement* and substitute the one more in accord with the law, "*Dying Declarations.*"

Notwithstanding the fact that the term *Dying Declaration* is legal, it falls to the practitioners of medicine to receive such declaration at the death-bed more frequently than it does to the practitioners of law and unless we are instructed as to how such declarations are to be received to make them admissible as evidence, we shall fail in our duties to the public and to ourselves. It is the physician who is at the side of the man dying from a felonious assault and hears the last gasp of perhaps the only individual who could bring the criminal to justice. It is the physician, who in faithful attendance upon the poor woman dying from the effects of criminal practice, receives her last penitent statement. In the sudden calamity due to the criminal neglect or carelessness of some individual, it is the general practitioner who is called and the chances are that he is the only one there who should know of the demands that safeguard the importance of the dying declaration.

If it is true, that the general practitioner should be familiar with the law relative to taking a dying declaration, how much more is it needful that the Coroner's Physician should be so instructed. It is customary, in those communities where the Coroner's office is represented by the Medical Examiner, to call upon this latter official to act in taking statements or confessions from those dying at the hands of others. This is based upon Section 1782 of the General Statutes of the State of Connecticut and reads as follows: "*Statement of Person Injured by Another to be Taken.* Whenever a Coroner has notice that there is in his county, a person who has been dangerously wounded or injured by the criminal act, omission or carelessness of another, and who is likely to die from such wounds or injuries, he shall endeavor to

take or cause to be taken the statement of such person concerning the manner in which and the person by whom, injuries were inflicted.”

From the nature of the circumstances, it frequently becomes necessary for the Medical Examiner to take such a statement before he has an opportunity to communicate with his Coroner and under such circumstances, as a representative of the State in its right of protecting its citizens, administering justice and perhaps exacting retribution he must receive the dying declaraton in a way that it may be admitted as evidence when the State calls for it, impersonally and impartially. Do we then find the Coroner's Physician so instructed as to be familiar with this duty that may be exacted of him at any moment? He is referred to the General Statutes for his guidance and except as quoted above, they give him none.

The general practitioner is unable to obtain information from his library as to what conditions are necessary to render a Dying Declaration admissible as evidence or even what conditions may make it necessary for him to take such a declaration. The Coroner's Physician, as we have seen, does not receive much more light from the General Statutes and now we come to the Medical Student. Is he so instructed as to make him competent in this undertaking? So far as I have been able to learn the question is not a subject for instruction in the courses on Medical Jurisprudence as a rule, but I am glad that we can make an exception to this in favor of the Yale Medical School for in the Roster that The Dean kindly sent to me in response to my inquiry, I find this as well as the whole subject, well covered in their lectures. I do believe, however, that the subject should be in an available form for their future reference rather than in the lecture only. We, as practitioners, should have some more available source for information on this subject than the resort to legal libraries or having to

- turn to lawyers for our instruction. I am sure that those of you who have been called upon to hear the attack and defence of a dying declaration, that you have taken under the solemn conditions of the death-bed, with the full realization that it may mean the forfeiture of life or liberty of a fellow man and have by the attacks of counsel for the defence been made to appear partisan when your only idea in the matter was a solemn sense
- of your obligation, you will say that during that cross-examination you wished that your knowledge had been a little more explicit at the time you took the declaration.

Under ordinary circumstances, common law grants the accused the right to be confronted by his accusers and their testimony given under oath. A dying declaration is a departure from this rule and is admitted because its subject matter might not otherwise be obtainable and this evidence may be favorable or unfavorable to the accused. The conviction of immediately impending death is considered a fitting substitute for the oath. A dying declaration is made by a person the object of a felonious assault, the victim of criminal carelessness or neglect, or criminal malpractice.

As stated above, a dying declaration may be made favorable or unfavorable to the accused. It would therefore seem wise to receive a statement in every case of sudden, violent or accidental death where the circumstance allowed it. The scope of the declaration is limited to a relation of the events concerning the mischance and of that only. Illustrative of this limitation, the case of *Brown vs. Commonwealth of Penn.*, is very interesting: "A., for whose murder the prisoner was indicted, was found dead some three hundred yards from the house, in which his wife was found at the same time unconscious and badly beaten. She recovered sufficiently to make certain declaration relative to the death of her husband, implicating the prisoner. These were of-

ferred at the trial and admitted, but on appeal the full court reversed the judgment." The reference from which this is taken does not state if she made declarations relative to her own death or if there was a new indictment brought in against the prisoner for the second crime, but the point to us is that had the person receiving the declaration been familiar with the law and taken her declaration relative to her own death only, the last moments of the murdered woman would not have been lost to the cause of justice and retribution.

The *sine qua non*, of a dying declaration is that the declarant shall be conscious of the fact that he is about to die; and not only must he know that he is about to die but you must know that he knows it and be able to adduce evidence that he realized his condition before you are able to qualify his dying declaration as evidence. A few years ago B. attempted to gain entrance to a house which was left in charge of H., by its owner. There had been bad blood between B. and H. and B. was shot, while attempting to gain admission to the house, according to the defendant H.'s story. The Coroner's Physician takes B.'s statement which says that he was out in the road when H. shot him. B. knew he was going to die; the Coroner's Physician knew he was dying but he did not elicit the fact of such knowledge being held by him from the declarant. I had attended the declarant and by chance had had conversation with him that enabled me to show that he was conscious of his rapidly approaching end. I was stopped on my way home from the trial by a telegram, put on the stand again and this evidence introduced before the dying declaration could be admitted.

There must be, not only a realization of impending death to render a dying declaration competent evidence, but the declarant must have given up all hope of recovery and this loss of hope must have justification in the actual condition of the declarant. It is not enough

for him to be hopeless over a trivial illness and the hopelessness to be of the nature of discouragement or despondency but there must be the conviction that dissolution is almost immediately impending. In an English case *Rex vs. Mosley, B.*, at the time of making a declaration had no hope of recovery, though his doctor had such hopes for him. He lived ten days after making the statement. The statement was deemed to be relevant and accepted in evidence. In another case *Rex vs. Jenkins, B.* made some statement which was taken down like this: "I make the above statement with the fear of death before me and with no hope of recovery." The statement was read over to B. for his signature and he corrected it so that it read "with no hope at present of my recovery." B. dies in thirteen hours and the declaration is held to be irrelevant and is not admitted.

I was so thoroughly impressed with the importance of this knowledge on the part of the declarant of his impending death that the next case that I was called in to take a declaration at the death-bed I began the declaration in this manner: "Believing that I am about to die I make the following statement." I then took the statement of the declarant who was dying from septic peritonitis following a criminal operation in which she incriminated a certain man. There was no doubt in my mind but she was going to die. She had a specialist, a friend of the family there, from out of town, who considered her condition so critical that he refused to do anything for her until she had made a declaration. I was called in on purpose to take the declaration, as Coroner's Physician. When I read her declaration over to her with the preface that I had supplied she burst into tears and said that she did not want to die. She was immediately put on the operating table. The abdomen was drained of a pint of pus and she died in less than nine hours after making the statement. I made an autopsy that I was proud of for its thoroughness and

believed that I had done my duty to the State in a manner that would have been creditable to anyone. The case came to trial and where do you suppose the first fight of the conselors was? No one of the family, the attending physician, the operator or the medical examiner could say positively that that woman believed she was about to die from any statement from her own lips. True, she burst into tears when this statement was read to her and said that she did not want to die, but on the other hand if she was totally without hope why did she submit immediately to an operation that was hopeless?

This declaration was finally admitted but it was after such a bitter fight which was so nearly lost on account of the inexactness of my knowledge that I made up my mind that I would look the subject up with some degree of thoroughness and at my first opportunity address the matter to my brethren in the profession that so often has the solemn duty of listening to the dying declaration of man.

SUDDEN DEATH.

AUGUSTIN A. CRANE, M.D.,

WATERBURY.

I will invite your attention to my text which is found Chapter III, Section 1774, of the General Statutes of Connecticut:—

“ When a person shall come to a sudden, violent or untimely death, and when any person shall be found dead, the manner of whose death is not known, any one who shall become aware of such death shall forthwith report the same to the Medical Examiner for the town in which the dead body lies. Said Examiner shall pay the person first reporting such death fifty cents therefor, and shall without delay repair to view and take charge of the body.”

It will be noticed that this requirement is mandatory and not discretionary, applies to “any one who shall become aware of such death.” This would include the family of deceased, or by-standers, the physician in attendance, those in charge of a hospital where patients die of injury, the undertaker who assumes charge of the body, and the town clerk to whom application is made for permit to inter or export the body.

Thus if the attending physician ignores the law and grants a certificate of death from violence or poisoning, or suicide, because some days have elapsed since the events which led to the death took place, then it becomes the duty of the undertaker to report to the Medical Examiner and have the case brought under the observation of the proper state officials.

Again, if the undertaker, from ignorance or laziness, is also lax, and at the last moment presents the medical certificate to the town clerk, then it becomes the duty of that official—for the law says “any one who shall be-

come aware"—to withhold his permit and report to the Medical Examiner.

It is true that in the latter event some delay and inconvenience may be caused to the undertaker and to the family, but I can state from experience that one such occurrence will prevent so many others in future as to well compensate for the present inconvenience.

The public idea is general—almost universal—that all rules and laws are abrogated if the deceased can be kept alive for twenty-four hours from the time of original injury. This idea would seem to be too preposterous to contradict, except that it is so wide-spread, and is held by physicians and others of supposed intelligence. Upon what it is founded I cannot imagine. Its application would rule out the cases of Garfield, McKinley, many of the Iroquois victims, and a large proportion of those fatally injured in railway accidents.

In Litchfield County, largely made up of small towns with few doctors in each, the proportion of medical examiners among the physicians must be very large.

In such a gathering as *this, it probably would not be an extravagance to assume that half of those present hold commissions as medical examiners in their respective towns. Those who do not must report their cases to those who do, so anything which can define and simplify the future of each ought to be of general interest.

Having within a year been appointed medical examiner for the fourth largest town in the State, I have had to make a study of the requirements of the office, have had to make in some instances my own interpretation of the statutes, in which the section quoted leaves a large margin for personal interpretation.

I have had to guess at some details, and to guess quick. Some of these have been wrong, and more of them right. In either case I have always been able to get prompt and explicit information and instructions from our County

*Read before the Annual Meeting of the Litchfield County Medical Association, April, 1904.

Coroner, Mr. Eli Mix, but there will always be new and varying contingencies, without local precedent, which will have to be quickly referred to the Coroner and if he is not instantaneously accessible, must be promptly decided by the Examiner. Upon the correctness and judgment shown in these decisions, will, I presume, largely depend the examiner's continuance in office.

I would state that this paper has been submitted to Mr. Mix, and such portions of it as have passed his censorship and remain intact to be read to-day, may be said to bear unofficially the stamp of his approval.

I append the following valuable suggestions from Coroner Mix verbatim:—

“I would also call your attention to Section 1782 and think medical examiners should be instructed in all cases where there are persons dangerously wounded to at once notify the coroner. This also applies, of course, to all physicians who have knowledge of any person so wounded. Then too, I think physicians should,—in all cases, where persons apply to them in cases of abortion or suspected abortion, and the physician gives them treatment,—at once notify the medical examiner of such treatment, so that if there is a fatal termination the physician may not be placed under suspicion, as in many cases they might be liable to be.”

What constitutes a coroner's case? When does a person become a “person” in the meaning of this law? A full term fetus found in the road certainly is a “person.” Is a seven month fetus? Or a three month fetus?

What constitutes a “sudden death”? If an old and feeble person who has been gradually declining, and who has had no medical attendance, is found dead in bed, is it a coroner's case?

If a person known to have a cancer, and whose family refuse medical treatment, dies, and no doctor will consent to give a certificate, is it a coroner's case?

If a puny infant, three weeks to three months old, who

had no medical attendance since birth and perhaps not then, where the mother gets up and washes on the third day, where there is improper and too little food for the mother, and improper and too much food for the child,—if this child dies before the parents in their poverty and neglect realize there is anything wrong with it, is it a coroner's case?

Or, if a man has been told by his physician that he has heart disease and is liable to drop dead at any moment, and every one who knows him is aware of the situation, and he drops dead on the street?

Or, if a man supposes himself in perfect health, and no one save perhaps one insurance examiner knows him to have heart disease, and he drops dead on the street?

Or, if a doctor is called to a new case, finds him gravely sick, and makes no diagnosis, and the patient dies before he calls again, is it a coroner's case?

If a doctor makes one call on a patient, considers the sickness trivial, makes no diagnosis, and is informed later in the day that the man is dead?

Or, if a man dies after two days' sickness with an apparently simple fever, and just before death vomits coffee-grounds and his body turns a brilliant yellow, and inquiry reveals that he has that week landed from the tropics, is that a coroner's case?

These are not hypothetical, or at least not imaginary cases. They have all come up recently and some come up repeatedly. Each has to be judged on its merits, and few or no arbitrary rules can be laid down.

I had some correspondence with my coroner on a case where I had been called up at night, and had gone a long distance to find an old man who had evidently dropped away in logical sequence of a worn out old age. My report was returned on the ground that the death did not come within the meaning of the statute. I contended that the man might have been poisoned, or might have broken his neck for all the coroner or I or the State

could tell until I had made my investigation and report; that said investigation and report were a necessary factor to determining the cause of death as given. My report was accepted with directions "not to do it again" but to charge the family, in similar cases, my fee for the visit, and give a certificate not as examiner but as physician.

This plan I have since carried out, with result of considerable saving to the State and not entire loss to myself. I should estimate that in about one-third of the cases reported to me by other doctors, and where the death is evidently from natural causes, I advise them to give their own certificate, and the cases do not appear upon the coroner's records.

To go back and give partial answers to the hypothetical questions asked above,—at least as far as they have been answered in the individual cases which brought them up. I would say that while medically a fetus at the fourth or fifth month is a human being, there was no law and no decision defining its legal status on this point till 1893, when a Massachusetts court gave a decision based on English law, that a child must be proved to have been wholly born alive and capable of maintaining a separate existence before a charge of infanticide could be sustained. Therefore in general the medical jurist has to consider that only as a dead body which has arrived at least at a period of development where it is capable of sustaining independent life, that is, from the 180th to the 210th day, and later. (Francis A. Harris, in Hamilton's Legal Medicine.)

Death without medical attendance does not constitute a coroner's case. If there are no suspicions or unusual circumstances the Health Officer can give death certificate, or the medical examiner may do so in his unofficial capacity.

If cause of death is so well known that the attending physician fully understands it and is willing to grant a

certificate, he should do so after conferring with the examiner.

In cases presenting unusual or striking features, such as the immigrants of whom I spoke, even where no violence is at stake, it becomes the duty of the physician to report, and the examiner to investigate. In this particular case, the possibility of yellow fever, while not great, was enough to warrant correspondence with the Marine Hospital surgeon at Ellis Island, although with a negative result.

Now, having studied some of the details under which a case comes, or does not come, to the examiner, what is to be his procedure and his report when he gets the case?

Accident and violence cases are usually self-evident, except that a report to be of value should contain not only the purely medical information involved, but also a circumstantial account of the injury as it took place, so minute that the coroner may see it take place through his examiner's eyes. The names of witnesses and of those concerned, including all nearby employees in factories and the crews of trains and electric cars, should be supplied, that the coroner may have means to secure further information if he wishes it. It has been my experience that superintendents are always ready and glad to co-operate in securing such data; in fact the only danger lies that their data may be so complete and satisfactory that the State officials may unwittingly accept an *ex parte* and biased report as the final one.

The majority of all cases passing through the hands of the ordinary examiner will probably be medical rather than surgical, and will be those of sudden and unexpected death of people in apparently good health.

The natural tendency, backed up by years of tradition and concurrent public estimation, will be to file these all under the compartment labeled "Heart Disease."

But ought we to be satisfied with this simple and easy

and laity-like diagnosis? Does nothing ever give out suddenly except the heart? Are we to forget or ignore the likelihood of cerebral hemorrhage, or embolus? Or the frequently unsuspected but long standing renal cirrhosis and sudden uremia?

Within a few weeks, conference with another physician who knew somewhat of the recent history of one of my sudden deaths from "heart disease," enabled me to make a far more intelligent report of ambulatory typhoid fever. Again, by inquiring closely into antecedents, I was able to decide that still another victim who apparently died in bed from "heart disease" really suffocated in the bed-clothes during an epileptic fit.

In reality the term "heart disease" is only an abbreviated way of certifying "Death from natural causes, precise nature unknown, and without autopsy unknowable."

I would in this connection make a complaint of the present Connecticut law and practice in this particular. In New York and some other places, provision is made for autopsy in all cases where precise cause of death is otherwise undeterminable. Here Section 1777 reads,—

"If he (the coroner) shall have reason to suspect that the death was caused by the criminal act, omission or carelessness of another, or other, he 'may' cause an examination or autopsy to be made." Notice the "may," and that this "may" only applies to cases where criminality is presumptive. The evil of that is two-fold. First. It leaves the ordinary medical case undiagnosable, except under the ample fold of the classification "heart disease," and in every one hundred cases of this, there will be one or more of unsuspected poisoning or fractured skull or other element of medico-legal importance.

Second, the consequent lack of autopsy experience and expertness prevents any of us, except a very few connected with large hospitals and colleges, as Dr. Bartlett of

New Haven, from being a sufficient master in post-mortem technique, with the result that our work on the infrequent important autopsy, which must occasionally come to each of us, cannot be of its full and requisite value to the State.

Recommendations for a change in the law whereby autopsies shall be performed in all cases where satisfactory diagnosis can not otherwise be made, would probably be discounted and ridiculed if it came from us, as it would savor of avarice for the fee; but a provision would conduce to scientific work where guess-work now displaces it, and would result in increased protection to the State and its citizens; and I fully hope for its eventual adoption.

I recognize the weight of the objections to such a proposition, and I append the comments of Coroner Mix, which form a strong argument for the present status:—

“I note what you say as to autopsies in all cases where cause of death is not precisely known. Of course, there are cases where an autopsy would be desirable, and the coroner does not feel at liberty, considering the expense, to order one. But generally, I think the medical examiner and coroner can convince themselves that the death was from natural causes and not from any suspected foul play. Of course, in all cases, the coroner has authority to direct an autopsy, and I believe a provision directing autopsies should be performed in all cases where satisfactory diagnosis cannot be otherwise determined, would be too expensive for the State of Connecticut to indulge in at present. The coroner's act, as it now stands upon the statute book, is a very excellent one, and I think commends itself generally throughout our state. Except in a few minor particulars, it has not been altered or amended since its adoption. I believe it might be amended in certain of its provisions, which would render it more efficient and useful; but I believe the opinion of our state's attorneys and other prosecuting

officers and of the coroners has been that if an attempt was made to tinker with the act, it might result disastrously to the entire coroner's law."

Very respectfully,

ELI MIX.

In viewing a body, the three questions to decide are:—

Is the body dead? How long has it been dead? What was the cause of death?

It is surprising to find how numerous and still how undecisive are the proofs of actual death.

The only positive proof is decomposition.

The flowing of blood, the rusting of needles, the production of vesication, the ability to produce local congestion by wet cupping, or ligature; the presence of translucency; the attempt to demonstrate respiration by a cold mirror or particles of light cotton, the formation of a thin film of mucus over the conjunctiva, the loss of elasticity in the eyeball, are all signs of some value, but each one is subject to fallacy. Careful auscultation, with stethoscope, is probably more certain than any. Loss of heat is, of course, positive, but it must be a loss of at least fifteen degrees in order to produce a mathematical certainty. The loss of heat can roughly be reckoned as four degrees per hour for three hours, three degrees per hour for six hours, then one degree per hour till the temperature of the surrounding media is reached. Under similar circumstances the dead body cools practically like any other mass of animal matter. Of course the temperature at time of death, and the cause of death make material differences in this regard. Immediately after death there begins to be a loss of muscular response to electric stimulation, and after three hours all such response is entirely lost in all muscles. Rigor mortis is not only a sign of death, but an index of the time elapsed, but even this varies in a considerable margin.

In Rigor Mortis portions of the body are affected in a certain sequence, beginning with the lower jaw, and the

same order is followed in its disappearance. The earlier it commences, the sooner it begins to disappear.

It begins in from eight to thirty hours after death, usually ten to fifteen. The duration is usually twenty-four to thirty-six hours, but varies above and below these limits.

It is commonly safe to assume that the presence of rigor mortis denotes that death has taken place within two or three days at the longest. The attitude of the body and limbs in this condition may be a valuable guide as to the position occupied at the moment of death, and the fact of any object being found tightly grasped in the hand may be of great significance. The cessation of rigor mortis marks the commencement of decomposition. Marks of this are shown first in greenish discoloration of the abdomen and softening of the eyeballs. After twenty days it is impossible to even approximately determine the date of the decease. Decomposition takes place faster in the air than in water, and much faster in water than in the earth. Casper holds that as much putrefaction will occur in the open air in one unit of time, as in the water in two units, or in the earth in eight.

In case of sudden death, where traumatism can be excluded, we find that the favorite verdict of heart disease includes a multitude of conditions, and that actual heart disease is a much less frequent cause of death than popularly supposed. Mitral disease would cause so many ante-mortem symptoms that it could hardly produce death unexpectedly. Aortic disease of course can and does.

As other factors, we have the formation of cardiac thrombi, killing either by lodgment in the valves or in the brain; stenosis of the coronary arteries; interstitial or fatty myocarditis, which, with or without valvular lesions, is probably the most prolific cause of sudden death from heart disease; increase of subpericardial fat, rupture of the heart-wall, or of a valve, or of the chordi

tendineae; also numerous cases of sudden death in which the only recognizable lesion is adherent pericardium. Then we have the rather large class of lesions in and about the heart which give rise to the condition clinically known as Angina Pectoris.

By exclusion we are forced to recognize frequent cases of death from functional disturbance of the heart including syncope and shock, the latter from either physical or mental causes.

Arteriosclerosis is a frequent cause of sudden death, either from emboli, or the rupture of small internal aneurism. Another factor, less often recognized, is the presence of inflammation thrombosis, emboli, and rupture of the veins, the entrance of air into the veins, and the formation of fat emboli.

Among the other numerous causes of sudden death, outside of the overworked heart, are:—

Acute laryngitis,—especially in children—and edema of the glottis; the pressure of an enlarged thyroid, and in children of an enlarged thymus, upon the trachea; acute pulmonary edema; rupture of a gastric ulcer into the peritoneal cavity; acute hemorrhagic pancreatitis,—which is now being thoroughly studied and is found to be much more frequent than had been supposed, and to be rapidly fatal, though obscure in its progress; acute and chronic alcoholism; hemorrhagic apoplexy, diabetic coma. Any of the acute infectious diseases whose symptoms have been masked may suddenly develop fatal complications, and unexplained sudden death.

A most prolific cause of sudden death is chronic diffuse nephritis, with or without uremia.

Death by asphyxia presents very distinctive marks including lividity of the face, overloading of the lungs, pulmonary vessels, and right side of the heart, with very dark color and marked fluidity of the blood.

But when we come to divide the very evident cases of asphyxia into the subdivisions of suffocation, strangling,

smothering, carbonic acid poisoning, and drowning, we find a far more difficult and sometimes unsolvable problem.

It is surprising to note the great number of supposed sure tests of drowning and to find that nearly all of them are either entirely discredited by the authorities, or are regarded merely as corroboratory. Relative temperature of the body; color of the body, except in old cases; position of tongue, whether before or behind the teeth; presence of goose-flesh; maceration of the submerged parts; presence or absence of sand under nails; retraction of the penis; cerebral hyperemia; position of the epiglottis; position of the diaphragm; the fact of the bladder being full or empty, are all considered valueless.

Vascular injection of the mucosa of the trachea; and presence of frothy mucus in the same, are however of great weight. The presence of water in the lungs or in the stomach is without significance unless it be a fluid of the special nature found only in the medium where the body lay. The increase of volume in the lungs, however, is of very great weight. Overloading of the right side of the heart and darkening and fluidity of the blood are indications of death from asphyxia, but not necessarily drowning.

In the new born, in the question as to whether death took place before or after birth, the height of the diaphragm has great significance and should be carefully measured. If respiration has taken place it reaches to the fifth or sixth rib; otherwise only to the fourth. To accurately determine the presence of air in the infant's lungs, it is necessary to ligate the trachea before opening the thorax, then the immersion of the removed lungs in water will determine the question of their aeration. The question of whether a heart-clot is post-mortem or ante-mortem can be determined by the striation, the red deposit at the bottom due to red corpuscles being found only in post-mortem clots. Ante-mortem clots on the

other hand are apt to be entangled in the chordi tendineae.

Hypostases are found on the body very soon after death, sometimes in one hour, generally in six hours, always in twelve hours. These occur on the most dependent portions. There are also post-mortem lividities which occur later; these are entirely different in nature and appearance and are due to transfusion of the blood coloring matter only. Both of these in turn differ from ante-mortem ecchymoses and extravasations. The latter usually elevate the cuticle.

To differentiate between the three, if the ante-mortem extravasations are cut, fluid blood can be pushed out; if post-mortem hypostases are cut, nothing can be pushed out unless it be black points of hardened blood; if the post-mortem lividities are cut, nothing is pushed out by pressure.

In cases where autopsy is ordered, while none of us is doing this work frequently enough to become or remain experts in the technique; we still can, by following closely the line of proceeding laid down in any text-book on the subject, and by carefully and methodically recording every step taken, produce a report which will make our work satisfactory and decisive, and which will stand examination on the witness stand. The necessity of complete record, dictated verbatim at the time must be strongly emphasized.

I would state that in the technical portion of this article, not the slightest claim is made to originality, and from a mass of most valuable and interesting material I have tried to cull a few practical and instructive points for our own work. My principal authorities quoted are, A. T. Bristow and Francis A. Harris in Hamilton's System, and Ludvig Hedstoen, James Ewing and Allen J. Smith, in Peterson and Haines' recent work.

SURGICAL PAPERS.



REPORT ON THE PROGRESS OF SURGERY.

THOMAS H. RUSSELL, M.D.,

NEW HAVEN.

One of the foremost surgeons in America stated at the organization of the American Medical Association in 1882 that—"In my opinion surgery has nearly reached its limit." If that surgeon had been asked a year ago to prepare a report on the progress of surgery requiring a perusal of the last year's surgical literature, one could badly imagine his surprise at the remarkable advances which have been made.

ANESTHESIA.

We have been heretofore accustomed to rely upon Ethyl Chloride as a local anesthetic only. It is important to know that it is coming into very extensive use for general anesthesia by inhalation for short operations, and it is claimed to have some advantages over ether and chloroform. Out of twelve hundred and forty-three administrations—of which one thousand were by Ware of New York—there was only one death proven to have resulted, and two others that may have been caused by it.

Ware, in his thousand cases, noted dangerous symptoms six times. It is stated that absolutely satisfactory anesthesia is obtained in ninety-five per cent: of operations, commencing promptly at intervals of a few seconds in infants, two or three minutes in adults, and the period of awakening is equally brief.

Ethyl Chloride is prompt and evanescent in its effect to a degree to render it somewhat comparable to laughing gas, and is useful in effecting preliminary narcosis previous to administering ether or chloroform.

Nausea is more frequently produced by it than by nitrous oxide, but less so than after ether. It is usually inhaled very quietly, and is best adapted for operations lasting only about ten minutes, although Ware of New York, has used it for fifty minutes in operations for strangulated hernia in infants and in other cases from forty to seventy-five minutes. He considers it a safe anesthetic, and that its danger point is not as readily or as suddenly reached as in chloroform, nor does it carry with it the remoter danger of ether. It is believed to be best used in the form known as "Kelene," although as put up under the names of Antidolorin and Anodynone, it has been said to act as a general anesthetic. It is certainly convenient to know that these agents which we regarded only as local anesthetics, are well adapted for general anesthesia also.

McCardie "thinks Ethyl Chloride an ideal anesthetic in short operations in country practice, on account of its portability and the satisfactory narcosis obtained by it."

We must all be interested in the fact that Dwight H. Murray in New York Medical Journal, June 27, 1903, reports that while performing a tedious operation in a hospital the ether vapor ignited from the closed electric light burning the face of the patient.

Starling described an important method for resuscitating patients from ether narcosis. His patient had been anesthetized, and the vermiform appendix removed, when both respiration and circulation ceased. He introduced his hand through the wound into the abdomen and up against the diaphragm, and feeling that the heart was not beating, he then with his hand gave the heart a squeeze or two, which immediately put it into action. Artificial respiration was at the same time continued for a few minutes. The patient completely recovered. Successful massage of the heart after the failure of artificial respiration in chloroform narcosis for abdominal operation was described by H. M. Cohen in the Journal American Medical Association, Nov. 7, 1902.

These are methods which we all should remember in abdominal operations.

Heretofore Spinal Anesthesia (Analgesia) has been considered not beyond its experimental stage, and somewhat dangerous, but Bier announces this month in an article which may be referred to in the *Journal American Medical Association*, May 7th, 1904, that the introduction of the suprarenal preparations has now placed it on a safer basis, for by their use it is possible to insure the strict localization of the cocain at the point where it is desired to act. This method was employed on one hundred and twenty-one patients, aged sixteen to eighty years, all but twenty-two being men, all being in various conditions contraindicating the use of general anesthesia, and not a single mishap occurred in any instance. It was evident that the adrenalin prevented the action of the cocain from extending up as high as when used alone, and is a great improvement upon all previous methods.

The present procedure requires that the patient lie on the table, the upper part of the body raised, the spine curved, humping outward. A line drawn to connect the two crests of the ilium crosses the fourth vertebra. The forefinger is then carried from its spinous process to the process above and beyond it until it is in the interspace above, between the second and third lumbar vertebrae. The needle is then introduced into this interspace on the convex side of the spine, the side toward the table, and about one c. m. to one side of the finger. The needle is readily pushed up and in. The injection is not made until the cerebrospinal fluid appears. If it spurts in a jet it is advisable to allow a few c. c. to escape. The syringe is then attached to the needle and the adrenalin or suprarenin injected. The syringe left attached to the needle closes the opening. After waiting for five minutes to allow the suprarenin or adrenalin to get in its work, the cocain is injected from a second syringe. In ten minutes the patient is ready for the operation. The

whole procedure is said to be very simple, much more so than general narcosis. It can be done by an assistant in the anteroom and during the fifteen minutes of waiting he can be preparing the field for operation. The Quincke needle is used, with two well-fitting syringes. From .005 to .2 gm. of cocain in a one per cent. solution is the dose.

On the whole, Bier claims that by the new technic the real dangers of spinal anesthesia are obviated. It is extremely important to note, moreover, that elderly and debilitated subjects tolerate the procedure remarkably well.

The list of cases in which he has applied the combination includes nine cases of amputation and resection of the rectum according to Kraske; eight of amputation above or below the knee; one of Edebohls' decapsulation of the kidney (bilateral); three of resection of the hip joint; eleven operations for hemorrhoids and one prostatectomy.

William K. Perkins of New Orleans, in the Medical and Surgical Journal, out of twenty-three hundred and forty-five cases of spinal analgesia, reports only sixteen deaths; of twenty-seven cases by himself and Parkham, eighteen were satisfactory; seven were partly satisfactory and two were failures. A two per cent. solution was used in almost all of these cases; the injections were from ten to forty minutes the total amount varying from one-fifth grain to nearly one grain. The most frequently used injection represented one-fifth of a grain to three-tenths of a grain. The analgesia was expected to begin in ten minutes or less, be complete in from two to twenty minutes, and continue from half an hour to an hour.

The method is contraindicated in children and in hysterical or very nervous persons. A perusal of recent literature on spinal cocainization would indicate that it is a procedure which may have come to stay, but that its use should be limited to patients in whom there is

some contraindication to general anesthesia by ether or chloroform, and it will never supercede those agents.

Gibbon, in the Philadelphia Medical Journal for May, 1903, has shown the efficiency of the intraneural injection of cocain to produce efficient anesthesia in amputation of the leg. The patient fifty years of age was in a condition which made it unsafe to administer a general anesthetic. The sciatic and anterior crural nerves were exposed and after injection by the infiltration method of a one per cent. solution of cocain, the leg was amputated not only without the patient having any pain, but without his knowledge. There was no shock from the operation and he made a good recovery.

F. G. Aldrich describes in the Lancet, August 22, 1903, the perfect efficiency of hypnotism as a substitute for anesthesia in amputation at the knee for necrosis of the leg in a feeble woman age thirty-eight, on whom chloroform had produced dangerous symptoms. The patient made no movement nor gave the slightest indication of pain; there was no shock, pulse continued at seventy-four per minute, and she made a good recovery.

STERILIZATION OF THE HANDS.

E. R. McGuire, Assistant to Roswell Park, has in American Medicine, February 28, 1903, a long and very complete article on the sterilization of the hands from which I give an abstract. After one hundred experiments of which the technique was:

1. Thorough scrubbing of the hands, 10-30 minutes.
2. Took cultures on Agar.
3. Exposed hands to the following antiseptics without reinfection between the scrubbing and use of the antiseptic.
 - (a) Mercuric bichloride five minutes.
 - (b) Potass. permang. two minutes, and oxalic acid till decolorized.
 - (c) Mustard paste five minutes.

He also tested other antiseptics. In each and every instance he obtained approximately as many colonies after as before the antiseptic.

His conclusions are as follows:

1. Absolute sterility of the hands is impossible by any method.
2. There is no royal road to sterilizing the skin; nothing takes the place of long and vigorous mechanical scrubbing.
3. The longer the hands are scrubbed under aseptic precautions the nearer the approach to sterility.
4. The use of antiseptics on the skin is at least questionable; under the usual conditions it is distinctly harmful.
5. When the true value of antiseptics is understood we will have cleaner hands, due to more conscientious scrubbing.
6. The use of rubber gloves, while not ideal, is the nearest approach to it.
7. The operator whose hands perspire freely ought to wear gloves in every case, regardless of all objections to them. Bichloride of mercury as ordinarily used does not destroy but only inhibit growth of germs. Experiments prove conclusively that it has no penetrating effect but only transiently forms an inert albuminate covering the germs which are liberated by the alkalinity of the blood during the operation. Bichloride of Mercury is so useless as ordinarily used and gives a false sense of security that in the words quoted by McGuire from Schleich it does "about as much good as making the sign of the cross over an open wound." Scrubbing should continue more than ten, and better thirty, minutes before using bichloride. At present the tendency is for strong antiseptics to be abandoned, giving place to brushes, soap, and rubber gloves, instruments being sterilized by boiling.

In spite of the fact that a slight objection has been made to the use of rubber gloves, on the ground that they are theoretically less adapted to do delicate work, and possibly resulting in one being less careful in the preparation of his hands, and as punctures in the gloves may occur, which would be serious if the hands had not been previously made aseptic, there is abundant reason to commend their use, and it seems probable that they will continue to be relied upon.

William B. Coley found that previous to the use of rubber gloves for himself and assistants in hernia operations, there was suppuration in four and two-tenths per cent. of operations. Since the use of rubber gloves by himself, in the same kind of patients representing four hundred cases, there was suppuration in only one and one-fourth per cent.

Their disadvantages and inconvenience have caused John B. Murphy, in the Journal of the American Medical Association for March 19, to advocate as a substitute a material which might be applied to the hands of the surgeon and skin of the patient which would cover the surface with an insoluble and impervious and nearly imperceptible coating, and one which would not interfere with the sense of touch or impair the pliability of the skin.

His routine plan for an operation is as follows: Five to seven minutes wash with spirits of green soap five per cent. and running hot water. Second, three minutes washing with alcohol; and third, after thoroughly drying the hands he pours over them a four, six or eight per cent. solution of gutta percha in benzine, and allows it to dry without rubbing, after the skin is thoroughly covered. The coating is so thin that it can only be recognized by its glazed appearance, but will resist soap and water washing, to cleanse the hands between operations. It is removed by benzine.

The surface to be operated upon is prepared with five minutes scrubbing with spirits of green soap five per

cent. and washing with ether followed by alcohol. The surface is then swabbed over thoroughly with a solution of gutta percha, dissolved in acetone or in benzine.

Dr. Murphy claims for this method over the use of rubber gloves, that it cannot be punctured like the rubber glove, that where it is washed off from the finger tips there is no accumulation of epithelium or secretions beneath. After operating the surfaces are washed clean, as readily as the surface of a rubber glove. At the end of the day's work, after the hands are bathed with benzine to remove the coating, the skin is very soft and smooth, and the surgeon's hands are thus protected from all deleterious effect of daily operating, which is in itself a safeguard against infection.

IMPROVED TREATMENT OF VASCULAR TUMORS.

John A. Wyeth has a very important article on "An Improved Method of the Treatment of Vascular Tumors, by the Injection of Water at a High Temperature," in *Journal American Medical Association*, June 27, 1903.

Non-malignant vascular tumors, or aneuriomata, when of large size, as cirroid aneurisms or cavernous naevi, have constituted some of the most difficult conditions requiring removal.

Wyeth's new method is simple, being easily executed and apparently free from danger. It has proved efficient in the removal of very formidable vascular tumors, which have been either too extensive for operation, or in which operation had entirely failed, and leaves little if any, cicatrix to disfigure the patient as do other procedures.

The only instrument required is a syringe similar to one for hypodermic use, but much larger, and having a longer needle.

Under ether narcosis the needle is introduced just outside the base of the tumor, and with the syringe boiling water is injected beneath and into the tumor at various points around the circumference. In dealing with a

formidable cavernous nevus occupying the right side of the lower jaw and chin, and a portion of the neck, injection was made at the first operation, of two or three ounces of boiling water, covering an area of about one-third of the tumor, so that the tumor temporarily became very warm to the touch. Notwithstanding the great heat, there was no necrosis of the overlying skin. The operation lasted ten minutes and there was no elevation of the body temperature nor any pain, after the patient became conscious. The blood and albumenoids readily coagulated, and within two weeks the area injected was shrunken at least one-half in size, when a second operation was performed; and two weeks later the tumor had lessened to two-thirds its former size. A third small injection caused its entire disappearance. Other formidable cases were equally successful.

In one child five or six ounces of boiling water were thrown in, and in none of the operations by this method did the patients have any pain after recovering from the ether. He would generally advise, however, not to use so large a quantity of water as five or six ounces. In none of these cases has there been more than a slight scar, if any.

Others have borne testimony to the great efficiency and value of this method, which appears to be preferable to all others. A perusal of Dr. Wyeth's description of his method in *Journal of American Medical Association*, June 27, 1903, will repay any one.

EXOPHTHALMIC GOITRE.

During the past year there have been several important articles on the surgical treatment of Exophthalmic goitre, one by Dr. B. F. Curtis, and the other by John B. Deaver, in the *"Annals of Surgery,"* both of which discussed the subject thoroughly and arrive at similar conclusions as to the best surgical procedure. The summary of Deaver's article is:

"That as surgical treatment is recognized as the most

satisfactory in exophthalmic goitre, so is complete bilateral cervical sympathectomy to be considered the operation of choice.

“The operation should not be performed during the height of psychical irritation or tachycardia, nor by an operator who has not an absolute knowledge of the anatomy of the neck and a large experience in dealing with difficult operative procedures, or the means at hand to cope with any emergency.

“The results of the operation are far better than other measures, the mortality is much lower, and in cured cases the improvement is permanent.

“In chronic glaucoma, especially after the failure of iridectomy and sclerotomy, this operation may restore vision completely, unless the disease is too far advanced with absence of light perception.

“In recurring attacks of epilepsy, sympathectomy should be resorted to. The results warrant the operation.”

SURGERY OF THE STOMACH.

It is but a short time since surgery of the stomach was almost limited to gastric cancer or pyloric stenosis. It is very noticeable that during the last year the application of surgery has been extended to conditions of the stomach which are benign and which were formerly considered as being entirely within the sphere of medicine. Now many of the most serious conditions coming under the head of chronic dyspepsia are more surely and permanently relieved by surgical operation. Gastroenterostomy is no longer now merely a palliative but an important and effectual means of treatment. Some of these conditions result from too prolonged retention of contents of the stomach, which plainly call for drainage as afforded by gastroenterostomy. It has been quite recently predicted that owing to the widely increased adaptability of gastroenterostomy surgery of the stomach will soon consist mainly of operations for gastric

ulceration or one of its various sequels, (perforations, hemorrhage, adhesions, etc.), and that operations for relief of sequels will not be so frequent as at present on account of the growing favor of early operative treatment for gastric ulcer. One cause of the much more general applicability of gastroenterostomy is the greatly diminished mortality. While it was formerly between 1881 and 1885—sixty-five per cent.—and was only reserved as a last resort as a palliative for those cases which were beyond hope of recovery, it is now diminished to fifteen or thirty per cent. according to statistics for all conditions, including cancer and where performed early to only five or even two per cent. With such a low mortality rate there is less justification for late operations even in benign chronic gastric disease.

Statistics prove that ulcers of the stomach are more common near the pyloric end. It is now becoming a well settled principle that chronic ulceration of the stomach is aggravated and repair retarded by distension and contact with food, and demands drainage of the organ, which can alone give it most perfect rest and freedom from irritation. Gastroenterostomy will surely keep the stomach empty and place the ulcer under the best conditions to heal, regardless of the position of the ulcer and even if no pyloric obstruction exists.

For recurring hemorrhage dependent upon gastric ulcer gastroenterostomy is now the established and most efficient method of treatment. The principal reason why gastric ulcer gives rise to hemorrhage is that as often as the stomach is distended by food or gas, the ulcer is drawn open with resulting tendency to loss of blood. The indications are now recognized as very plain heretofore, to perform this operation for hemorrhage from chronic gastric ulcer. Moynihan (Med. News March 14, 1903) states that it is "futile, harmful, and quite unnecessary" to search for the bleeding point. Gastroenterostomy accomplishes the cure. He writes that he

has performed gastroenterostomy for ulceration of the stomach one hundred times with a mortality of two per cent., and fifteen times for profuse and recurring hemorrhage with only one death. With such a small mortality the operation is worthy of consideration in an early stage.

As to the question whether in operations for gastric ulcer it is necessary to excise the ulcer, recent literature indicates that so efficient in causing repair of the ulcer, is the drainage by gastroenterostomy that it is not important to make any prolonged search for the ulcer but only to resect it if easily and promptly found.

Considering that chronic ulceration of the stomach is known to be the cause of carcinoma, (statistics showing this to be true in ten per cent.), and that by an early gastroenterostomy that result may be prevented, and the patient restored to permanent health, the importance of these new views of surgery of the stomach are worthy of utmost consideration. Rolson advises exploratory operation in doubtful cases. Osler urges the importance of prompt diagnosis for early operation.

In dilatation of the stomach gastroenterostomy constitutes the most efficient means of relief and when not too long delayed the muscular coat may regain its contractile power. So increasingly important has this subject of gastroenterostomy become the last year, that a few additional points are noteworthy. As in all cases requiring the operation the stomach lacks muscular power, the opening in the gastric wall should be made as low as possible. When it is made on the anterior wall it is usually made too high up and not in the most dependent portion, although it may be possible to make it as low on the anterior as on the posterior. Anastomosis of the jejunum with the posterior gastric wall if made through a vertical incision through the transverse mesocolon in general gives better drainage from a lower point.

In the performance of gastroenterostomy for any con-

dition some new points are now known to be essential especially after the anterior operation. The flow of gastric contents being along the greater curvature from the cardiac to the pyloric end the portion of intestine anastomosed should be given a half turn just before making the anastomosis so that the current in both viscera shall be in the same direction. A more important point is as bile and other intestinal contents accumulate in the intestine above the anastomosis regurgitation into the stomach can only be prevented by making another anastomosis between the proximal and distal limbs of the intestine a few inches below the gastroenterostomy. The Murphy button for gastroenterostomy is still strongly endorsed.

A. H. Cordier in the *Journal American Medical Association* October 17, 1903, described a very interesting case in which a Murphy button was harmlessly retained in the stomach nearly seven years. It was used successfully in gastroenterostomy for pyloric obstruction due to healing of non-malignant gastric ulcer, and the patient completely regained his health, was entirely well and free from all gastric symptoms until his death from pneumonia about seven years later. A post-mortem revealed the button lying free in the stomach, where it had not produced by its long presence, any irritation, nor the slightest discomfort to the patient.

Robson prefers gastroenterostomy or gastroduodenostomy to pyloroplasty in pyloric obstruction. Even in cancer and other tumors of the duodenum producing obstruction, he considers gastroenterostomy the best operation.

H. D. Beyea in *Philadelphia Medical Journal*, February 7, 1903, makes a valuable addition to gastric surgery in an article entitled "The Elevation of the Stomach in Gastropptosis by the Surgical Plication of the Gastro-hepatic and Gastrophrenic Ligaments; an Original Operation." Gastropptosis being the falling or descent of the

stomach out of normal position, thereby rendering normal digestion impossible even by medication; he suggests and has very successfully performed on four patients the rational and not difficult operation. I quote the following two sentences: "The operation we have devised simply shortens the natural ligamentary supports, and the normal mobility and function of the stomach are completely preserved. The principle of the operation must be considered physiologically and surgically ideal."

H. O. Walker advocates and fully describes and illustrates in the *Journal American Medical Association*, January 17, 1903, "Gastro-jejunostomy with the McGraw elastic ligature for the relief of Gastropotosis."

Ulcer of the duodenum is believed by Robson and others to be most advantageously treated by gastroenterostomy.

N. Senn, in *Boston Medical and Surgical Journal*, December 28, 1902, recommends the purse-string suture in repairing gunshot wounds of the stomach.

CIRRHOSIS OF THE LIVER.

Greenough in the *American Journal of the Medical Sciences* for December, 1902, has an article on "The Surgical Treatment of Cirrhosis of the Liver with a Summary of Reported Cases."

From the analysis of one hundred and twenty-two operations for cirrhosis he gives the following conclusions which are noteworthy.

Of one hundred and five cases of liver cirrhosis which presented symptoms of ascites forty-two per cent. were improved and fifty-eight per cent. not improved by Talma's operation, or one of its modifications. Nine cases remained improved in health two years after the operation. Talma recommends the extensive suturing of the omentum to the abdominal wall on both sides of the margin of the abdominal incision which is above the umbilicus, care being taken not to injure any of the omental veins, and also to produce irritation of the peritoneal

surface of the liver and spleen. The incision is closed without drainage. The operation has for its aim the establishment of an anastomosis between the vessels of the omentum and those of the abdominal wall by fixation of the omentum to the peritoneum, thereby affording relief to the obstructed portal circulation. Neilson in the *Philadelphia Medical Journal*, May 9, 1903, describes the technique and a severe typical case of cirrhosis of the liver with ascites in which the patient remained well twenty-one months after the operation. In the same *Journal*, Keen reports a severe case of cirrhosis with ascites with no recurrence two years after the operation.

DECAPSULATION OF KIDNEYS.

Probably no surgical operation ever caused surgeons greater surprise than that originated by Edeboles in 1901 to cure chronic Bright's disease by decapsulation of the kidneys, or as it is now termed Nephrocapsectomy.

Physicians doubtless considered Bright's disease of all others as one most likely to always remain within the sphere of medicine. Surgeons on the other hand believed that any patient having chronic nephritis was a wholly unfit and peculiarly unsafe subject for any operation, and were surprised when Edeboles boldly advocated a severe operation upon the kidneys themselves in Bright's disease. Both physicians and surgeons knowing their inability to cure this disease, believing it to be well nigh hopeless, especially welcomed any procedure which would promise a cure for this fatal malady.

Bright's disease usually affects both kidneys and was such a mortal disease, his proposal to perform his operation, not on a few selected patients, but on all cases of chronic Bright's disease, was startling to the entire profession. No other operation for chronic Bright's disease is now performed, although previously Pusson once proposed and performed nephrotomy and Rovsing advocated and at one time performed an operation known

as Nephrolysis. These operations were never performed by any except by their originators, and even they no longer perform them. The operation of Edeboles is being resorted to by an increasing number of operators at the present time.

His operation is finding such increasing endorsement that it is now known to have been performed on two or three hundred patients by over forty American surgeons and by well-known operators in Europe, and remains the only surgical procedure for the treatment of chronic Bright's disease as such.

It is now advocated for diseased conditions of the kidney other than chronic Bright's disease—as for pyonephrosis, hydronephrosis, acute pyelonephritis with military abscesses, polycystic degeneration of the kidneys and puerperal eclampsia of renal origin. Whitacre obtained an immediate and lasting cure of acute suppression of urine continuing eight days by renal decapsulation.

Rose as a routine measure completely decapsulates every kidney upon which he performs fixation. Roswell Park advises decapsulation of all kidneys operated upon for any reason. Edeboles believes that decapsulation cures Bright's disease at least partially by the removal of the impervious renal capsule affording an opportunity for the formation of a new vascular connection between the blood-vessels supplying the secreting structures of the kidney on the one hand and the blood-vessels of the tissues surrounding the kidney on the other.

Postmortem examinations have established the fact that after decapsulation a new capsule is always formed, sometimes thinner and sometimes thicker, but always more vascular than the original capsule, and there is evidence that vascular connections actually form between the new renal capsule and the surrounding tissues. There is also abundant proof that there is no ground for the apprehension that there is any danger from contraction of the new capsule.

Edeboles reports (Medical Record, March 28, 1903) having performed decapsulation for chronic Bright's disease of the kidneys on fifty-one patients, embracing forty-seven operations on both kidneys and four operations on one kidney only, twenty-nine being females and twenty two males. All of them were adults excepting one girl four and one-half years old. Twenty-nine had chronic interstitial, fourteen chronic diffuse and eight chronic parenchymatous nephritis. In eleven the time is too short to be able to judge of final results, and three cannot be found; of the remaining thirty-seven, thirteen died, ten are cured, twelve greatly improved and two are not improved. The average duration of the cure is four years. The great majority of the cured returned to their work within two months, although some were previously bedridden.

PANCREAS.

The pancreas is the last of all organs to become the subject for surgical operations. Even its diseases were so little understood until recently, that it is less than a year since the first text-book on the subject was published by Opie, but this did not refer to surgery of the organ. A few brief and one complete reference to the surgery of the pancreas, is, however, to be found in recent medical journals and I have drawn my information largely from the most complete account by Von Mikulicz Radecki in the *Annals of Surgery* for July, 1903. Although it is a new and very incomplete chapter in surgery it is evidently one which will attract more attention in the future. Although diseases of the pancreas requiring operation are not of common occurrence, yet a knowledge of this new subject is very important, for such conditions are peculiarly fatal unless promptly relieved by surgery. They are probably a more common cause of death than is as yet known because their symptoms are obscure and not generally understood.

There are several reasons for this late attention to the surgery of the pancreas. Its small size, (six inches in length, one and one-quarter inches in width, one-half inch in thickness) and the depth of its position beneath so many other important structures, render it difficult to make a diagnosis. While the subjective symptoms are ill-defined and not at all characteristic, even objective symptoms can seldom, if ever, be such as to render the diagnosis positive. The depth of the organ and its small size makes it impossible to ascertain anything definite by palpation. At present it is considered that positively characteristic symptoms are so often lacking in diseases of the pancreas until so far advanced as to be hopeless, exploratory operations should be undertaken as soon as it becomes even probable that a condition of the pancreas requiring an operation exists.

Another reason why the surgery of the pancreas has been undertaken only recently is that it lies beneath and is surrounded by such important structures that an operation upon it is usually difficult, and for the following reasons operations are now recognized as peculiarly dangerous. The organ is so very vascular and fragile that it is difficult to control hemorrhage during operations. It is now known that any escape or leakage of the secretion of the pancreas is especially harmful to the peritoneum, therefore in all operations on the pancreas all possible effort must be taken not to allow the pancreatic secretion to escape into the abdominal cavity.

Conditions now recognized as requiring operations upon the pancreas are cysts or other small tumors, calculi, abscess, hemorrhage, necrosis, pancreatitis and removal of portions of the organ. Opie calls attention to the common association between cholelithiasis and disease of the pancreas. The causes of this are evidently anatomical, for the pancreatic duct unites at its distal extremity with the ductus communis choledochus, discharging by a common opening into the duodenum four

inches below the pylorus. Redecki states that wherever the pancreatic tissues have been opened the abdominal cavity must be tamponed and drainage established, and states that he has been able to obtain statistics of twenty-seven operations where drainage was employed with a mortality of thirty-eight per cent., and of forty-one operations without drainage in which the mortality was eighty per cent.; proving that lack of drainage in operations on the pancreas is almost certainly fatal, from peritonitis. Statistics show that injuries of the pancreas are almost inevitably fatal without operation and drainage, and that therefore whenever pancreatic injury is suspected, exploratory laparotomy should be quickly performed. As a proof of this Von Mikulicz Radecki has shown that of twelve gunshot wounds of the pancreas, seven not operated upon, all died and of five operated upon three recovered. Of twenty-four subcutaneous injuries of the pancreas thirteen not operated upon all died and of eleven operated upon seven recovered. The operation consisted of exposing the injured pancreas, and drainage. He has also collected seventy-five operations for pancreatitis in both late and early stages of the disease. Of thirty-seven cases in which the pancreas was involved in the operative interference twenty-five recovered, but in forty-one cases in which the operation did not touch the pancreas, only four recovered.

Statistics show that any accidental injury to the pancreas during the progress of any abdominal operation more than doubles the mortality and the cause of death is chiefly peritonitis.

During the last few years the surgery of the spleen has attracted more attention. Berger states that in case of injury the chief danger is hemorrhage. Fifty-one per cent. died during the first hour. As the diagnosis of the injury can never be absolute exploratory operations should be promptly resorted to in suspected cases. Splenectomy has been successful for rupture and wound

and enlargements of the spleen. Statistics show that prognosis of operated cases improves every year. In 1890 it was seventy per cent., in 1897, fifty-five per cent.; in 1898, thirty-seven per cent.; in 1899, twenty-six per cent., and more success has been reported recently. After splenectomy leucocytosis and diminution of erythrocytes can be noticed, but after a time the blood becomes normal.

SECONDARY REMOVAL OF APPENDIX.

Howard A. Kelly in *Journal of the American Medical Association*, October 25, 1902, has a very interesting article entitled "Under what Circumstances is it Advisable to remove the Vermiform Appendix when the Abdomen is opened for other Reasons?" He gives the results of sending the two following questions to eighty well known American surgeons.

1. When the abdomen is opened for other causes and the perfectly normal appendix is easily accessible, is it your rule to remove it?

2. When the appendix is slightly adherent to neighboring structures as peritoneum, ovarian or fibroid tumors, do you then remove it?

Seventy-four replies were received. There were forty-four unqualified negatives to the first question against twenty-six affirmatives and sixty unrestricted affirmatives to the second question against seven negatives. These results prove that a large majority are against removing the normal appendix. An overwhelming majority favor the removal of the appendix when it deviates in the slightest degree from normal. Kelly's own opinion coincides with the majority as above stated. He calls attention, however, to the importance of always examining the appendix in abdominal operations for other causes. The fact that the appendix is normal in appearance does not prove that it contains no fecal concretions and their presence is sufficient reason for the removal of an apparently healthy appendix.

THE OMENTUM.

N. J. Senn has an important article on the omentum and its transplantation in the Journal American Medical Association, April 18, 1903, and shows that animals from whom the omentum has been removed quickly died after infection not fatal to others (the infection being introduced into the abdomen), and that the omentum plays a great role in the destruction of microbes and that it has a property of conveying immunity to the peritoneal cavity and quotes Roger as proving that the omentum is a lymphatic ganglion.

His conclusions are that:

“1. Transplantation of omentum over defects of the stomach is an established operation.

2. Transplantation of omentum over intestinal defects is recommended but is still in its developmental state.

“3. Transplantation of omentum over defects in the cecum is the most favorable portion of the intestinal tract.

“4. Transplantation of omentum over defects in the small intestine should only be done after fixation of the segment of intestine to the abdominal wall.”

SEPTIC PERITONITIS.

J. B. Murphy in Journal American Medical Association April 11, 1903, calls attention to important points in general suppurative peritonitis. Death is well known to be caused by a large quantity of products of infection rapidly absorbed.

Infective material diffused into the upper portion of the abdomen enormously increases the danger because it is absorbed much more rapidly from the upper half of the abdominal cavity than from the lower. For this reason all of his patients with general peritonitis were kept in the semi-sitting position at an angle of thirty-five degrees from the time they came under observation, both before

and after operation, until the pus was entirely removed. In all the cases an effort was made to allow the pus to settle into the pelvis where it would be free from pressure and could be easily carried off by drainage-tubes.

This is known as the Fowler position and is advocated by Fowler in *American Medicine*, June 20, 1903, as causing the gravitation of septic fluids into the pelvic cavity where the environment is unfavorable to their absorption.

Van Buren Knott has an article on "Fowler's position in Abdominal Surgery," in *American Medicine*, July 25, 1903, which is worthy of abstract.

In recommending this postural treatment for diffuse septic peritonitis Fowler by recommending the elevation of the head and trunk marked a new era in the surgery of peritonitis and has saved many lives which would have certainly been lost by the Clark position previously in general use and which was positively harmful. He was also so much impressed with the fact that patients after all laparotomies have less if any nausea or vomiting and that normal intestinal peristalsis is more quickly established, that the patient's comfort is greatly promoted; he always orders the head of a laparotomy patient's bed raised thirty inches immediately after leaving the operating table.

The importance of early operation for intestinal perforation in typhoid fever is more generally recognized. Osler states that one-third of the mortality is due to intestinal perforation and that probably one-half of the deaths might be prevented by operation if sufficiently early.

PROSTATE.

The surgery of the prostate has attracted so much attention, especially the operation of prostatectomy and recent literature on the subject is so voluminous that only a brief summary is possible.

Although the necessity of removing the hypertrophical

prostate was long recognized as one of the most important needs of surgery, up to a recent date all known methods of operation were so incomplete, unsatisfactory, and fatal that they were not advisable or hardly justifiable. Now when the prostate becomes hypertrophied and palliative measures are in the least difficult, there are operative procedures which are worthy of confidence, but there is still some difference of opinion as to route and technique. Although operative measures have been so much improved, I believe that all of us will endorse the propriety of Thorndyke's statement, that some patients may be carried through to the end of their lives in such fairly comfortable condition by the systematic use of a catheter that there is still a place for the catheter. He would delay operative interference until difficulties arose during catheter life. Just as soon as obstacles arose in the use of the catheter operation measures should be resorted to and should not be postponed, unless there are especial contraindications. Recent writers are almost unanimous that prostatectomy should now be preferred to all other operations when no exceptionally adverse conditions are present.

Thorndyke states that prostatectomy can seldom be resorted to with any degree of safety in patients who are over sixty or sixty-five years of age, and that it is an operation which should be reserved for cases which are fair surgical risks. Questions as to route and technique are not positively settled.

As to the route, whether supra-pubic or perineal;—while each has its advocates, the perineal is so rapidly gaining in favor there is good reason to believe that under ordinary circumstances it will be the one chosen by all operators, and the supra-pubic will be reserved for unusual conditions. The advantages of the perineal route over the supra-pubic are that the drainage is better, hemorrhages less, less danger of sepsis and danger to neighboring structures—repair is more rapid, the patient

more quickly gains vesical control and the mortality is less.

As to the form and location of the incision for perineal prostatectomy, there is much difference of opinion varying from a short median incision, which, as some state, gives adequate space to the more extensive semilunar incision of Zuckerkandl, triangular incision of Kocker—to the more extensive inverted Y incision of Senn, and which he advocates (*Journal American Medical Association*, August fifteenth, 1903) as the most desirable because it gives most space and that by employing it the surgeon operates as little as possible in the dark. Senn calls attention to the fact that the dangers of the operation are reduced to a minimum by resorting to an incision that may expose the prostate in the freest possible manner to sight, and touch, and believes that this is best accomplished by combining the median incision with the lateral ones, representing in outline an inverted capital letter Y, the lower extremities of the lateral incisions ending at a point midway between the margins of the anus and the tuberosities of the ischium.

Hugh H. Young of Baltimore, (*Journal American Medical Association*, October twenty-fourth, 1903), describes a new metallic prostatic tractor which is a very valuable addition to our armamentarium, and appears to fulfill all that he claims for it in rendering the prostate much more accessible and the operation is performed in a shallow wound accurately under visual control.

His technique is a great advance over other methods. It would be impossible to do full justice to his description by any brief abstract. It should be read by all interested in the subject.

All of the fifteen patients subjected to operation by his improved method have recovered, have no inconvenience and can completely empty their bladders without a catheter. His procedure even appears to preserve in some degree the sexual powers of the patient.

Recent statistics of perineal prostatectomy are: Albaran, forty-two operations on patients averaging sixty-three years of age, with thirty-five complete cures, and one death. Murphy operated upon thirty-four cases with one death. Young operated on twelve cases with no deaths. Goodfellow, twenty-six cases with one death. MacGowan, twenty-eight operations with four deaths.

While recent writers on surgery of the prostate consider prostatectomy to have superseded the Bottini operation, yet the latter is admitted to still have a limited field for usefulness, being reserved for those feeble patients whose age or unfavorable general condition prevent them from constituting fair surgical risks, and who must, therefore, be content with a less severe, less radical, less efficient operation, and not as hazardous to life.

HERNIA.

As to the status of operations upon hernia, the Bassini operation or its modification by Halsted, has not been surpassed and excels any other for oblique inguinal hernia in male patients. In performing the operation in female patients Coley does not now find it necessary to transplant the round ligament, but simply closes the canal over it. Of his one hundred and eighty-one operations on the female for inguinal hernia, there was no relapse. For femoral hernia he employed the Bassini operation in sixteen cases and the purse-string suture in fifty cases; in the last group there has not been a single relapse. It is important therefore in operations upon femoral hernia that we adopt this new method with the purse-string suture, as having a decided advantage.

Coley has introduced a modification of the Bassini operation for inguinal hernia by always placing a single suture in the internal oblique muscle above the point at which the cord passes through. This is not a part of the original Bassini method, but he believes it to be a decided aid in preventing relapse. He dresses the wound with ten per cent. iodoform gauze and a spica bandage. In

children under fourteen years of age he uses a plaster spica. He advocates Kangaroo tendon as the best suture material and believes that the great diminution in supuration since the introduction of rubber gloves in hernia operations, proves that the infection came from the hands of the operators and assistants and not from the suture material.

The mortality in Coley's series of one thousand and three cases, was two deaths—less than one-fifth of one per cent. He had a series of five hundred operations without a death, whereas previous to 1890 the mortality was about six per cent.

In hernia cases as to the important question whether an undescended testis may be removed, Coley states that out of thirty-eight cases, in only one did he find it necessary to remove the testis, believing in the physiologic value of even an atrophied and probably functionless testis. He makes it a practice never to remove the organ, and has not removed it except on two occasions. He does not advise operation in the majority of hernia with undescended testis in children under the age of ten years, for the reason that in many cases the testis will descend into the scrotum spontaneously. While the results of radical operation for inguinal and femoral hernia have been very satisfactory, the results in umbilical hernia have been much less so. Up to the present time the mortality after umbilical hernia is ten and one-half per cent. for all cases and in forty-three per cent. relapse occurred. Bull and Coley both believe that no definite cure can be guaranteed in umbilical hernia unless it is small. Statistics now prove the great importance of early radical operation in umbilical hernia as the possibility of cure diminished with the size of the hernia.

Willy Meyer, in the "Annals of Surgery" has made a useful contribution to the surgery of hernia. He described how in three very stout patients with such large hernial apertures that there was slight, if any, possibility

of cure by the ordinary methods, he implanted a silver filagree net made of various sizes and shapes to fit the opening, which were so large it could not have otherwise been closed. The use of this filagree netting has not been sufficiently extended to warrant its use without some caution.

The net used for inguinal hernia is an acute angled triangle with the base turned toward the median line, there being a small aperture left in the base for the passage of the spermatic cord. It rested upon the internal oblique above and was sutured to Poupart's ligament below. For umbilical and ventral hernia, the filagree net is round, oval or quadrangular, with blunt corners, and is sutured aponeurosis of the abdominal muscles bordering the opening.

DISCUSSION.

Dr. Bacon: Mr. Chairman, I am not prepared to discuss the paper on surgery, but I cannot resist the temptation to rise and thank Dr. Russell for his able review on the position to-day of gastroenterostomy, and particularly for his able exposition of the operation for the relief of hemorrhage of the stomach, both diffuse and that arising from an ulcer, and the idea that it is not necessary always to locate the ulcer and extirpate it, but that the operation itself will do as much perhaps in many cases to relieve the hemorrhage as though the ulcer itself is extirpated. That idea is advanced quite recently, and I was very glad to hear it spoken of. I was very much interested in the paper throughout.

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**"A FURTHER REPORT ON THE SURGICAL TREAT-
MENT OF THE ENLARGED PROSTATE GLAND."**

OLIVER C. SMITH, M. D.,

HARTFORD.

Mr. President and Gentlemen of the Connecticut Medical Society:—

On the fifteenth of October, 1902, I read before the Hartford County Medical Association, a paper on "The Treatment of Prostatic Hypertrophy."

In that paper I took up at some length, the etiology and pathology of the diseases of the prostate, and also the history of its study and treatment. After a consideration of the palliative lines of treatment, including manipulation and medicinal measures, I gave a detailed account of the various surgical procedures which have been used, and are now in use for the relief of this condition.

I reported at that time nine operations upon the prostate gland, which had been performed in this State during the six months previous to that date. Of these, seven were perineal prostatectomies, or enucleations, one a suprapubic prostatectomy, and one a prostatotomy by the Bottini method.

During the eighteen months which have elapsed since reading this paper, the interest in the subject has increased throughout the entire country, more so here than abroad, unless we except Paris. The literature on the subject has grown immensely, the technique of the operation has been improved upon by several, and the mortality following the operation is steadily being reduced. The author took the ground in the paper referred to that the operation of choice in a given case must depend

entirely upon the local and general conditions of which we find a decided variety.

First, there is that class of cases on which it is possible to safely and comfortably catheterize the bladder and keep the urine free from decomposition and pus, and in which some contra-indication to surgical interference exists. This class of cases are best treated by the regular and aseptic use of the catheter, accompanied by irrigation and the internal administration of remedies which prevent urinary decomposition.

Another class of cases include those in which the obstructing prostate is becoming more and more troublesome, the catheter being used with increasing difficulty, and in which there exists no marked contra-indication to surgical interference. These cases demand an operation. The choice of that operation depends upon the size and shape and situation of the obstructing gland. If it is pedunculated, or intra-vesical the suprapubic operation should be given the preference. If the prostate is large and bulging down against the anterior rectal wall, or if there is an enlarged third lobe or prostate bar which can be plainly made out by rectal examination, the perineal route should be selected.

In another class of cases where the obstruction is incomplete, and the cystitis not sufficiently severe to demand immediate drainage, and where contra-indications to general anesthesia exist, the galvano-caustic prostatotomy of Bottini, Freudenberg and Young may be employed.

In another important class of cases with marked septic infection from purulent cystitis, or where there has been rupture of the urethra with extravasation of urine and pus into the periurethral and perivesical tissues, where the patient's physical condition will not warrant a formidable operation, and where immediate and thorough bladder drainage is imperative; in these cases a rapid perineal incision with external urethrotomy and stretch-

ing of the vesical neck followed by the introduction of a double drainage-tube, all of which can usually be done in a few minutes and under local anesthesia, is the proper expedient.

There is a growing tendency among surgeons who are doing most in this line, to favor the perineal route.

During the past six months, the author has had the opportunity of discussing the subject with several of the men who have had the largest experience in this country, and in France. He finds that several among them, who but a few years ago were advocating the suprapubic route, or the Bottini operation, are now doing the majority of their prostatectomies through the perineum. It is admitted by all that perineal drainage is more satisfactory than that obtained through the suprapubic incision.

The bladder is tapped at the base, and not at the roof. There is much less danger of infection of adjoining tissues from the perineal wound, than from the suprapubic and there is less hemorrhage and less shock.

During the past two years several valuable important additions to the literature have been made of the perineal operation; one by Dr. Charles H. Chetwood, who read a paper in 1902, before the American Association of Genito-Urinary Surgeons on the method of perineal prostatotomy, in which he advocates the use of the galvano-cautery incision through the perineal incision establishing perineal drainage at the same time. He reported seven cases of prostatic hypertrophy having been operated upon at that time by this method with no fatality. If the galvano-cautery is to be used, this method appeals to me more strongly than the original method of Bottini and Freudenberg. It is done in the light and not in the dark. The extent of the incision is under control, and of great importance is the drainage which follows.

Dr. Ramon Guiteras has devised and advocates two methods; one which he terms a perincoprevesical, and another a vesicorectal. The former consists in making

an incision suprapubically into the prevesical space, without going into the bladder. External perineal urethrotomy is next performed, and a pair of sharp-pointed scissors passed into the perineal wound. The tissues over the apex of the prostatic urethra are then incised. Enucleation with the right index finger tip is now performed, while counter-pressure is made over the prostate by the fingers in the prevesical space. The enucleation is followed by perineal drainage. Dr. Guiteras considers this the safest method of performing prostatectomy.

His other method consists of a suprapubic cystotomy, the insertion of two fingers of the left hand into the rectum, and the index finger of the right hand into the bladder. When the prostate is palpated bimanually, a pair of sharp-pointed curved scissors are passed into the bladder, the points thrust into the most prominent portion of the prostate, just behind the internal meatus. The blades are opened, tearing the tissues over the gland. The finger tip is now inserted into the opening and carried between gland and capsule, while counter-pressure is made by two fingers in the rectum. Perineal incision follows this to secure drainage.

In his summary, Dr. Guiteras states that the statistics of the results of prostatic operations, demonstrate that the successful cases belong most frequently to the class having a small amount of residual urine, and a moderate prostatic enlargement. An early diagnosis is, therefore, of paramount importance, and that the choice of the operation will be determined by the resisting power of the patient, the size and shape of the prostate, with special reference to the seat and extent of the hypertrophy, as well as the condition of the kidneys and bladder.

The most valuable contribution to the technique of perineal prostatectomy appeared October twenty-fourth, in The Journal of The American Medical Association, by Dr. Hugh H. Young of Baltimore.

Two years ago, Dr. Young advocated, for the majority of cases, the Bottini method. He now reserves this operation for such cases as will not permit of a cutting operation, or for cases which seem to him too feeble to permit of any other surgical procedure.

His present method of performing perineal prostatectomy, is, to my mind, the most scientific yet devised.

The essential features of Dr. Young's operation are the more thorough dissection of the perineal tissues, either through a median incision or through an inverted V shaped incision, this depending upon the thickness of the perineal muscle, and the amount of perirectal fat. The division of the central tendon in the perineum which allows the sphincter and levator ani to retract, and the rectum to be drawn forward by the recto-urethralis muscle.

Proust brought forward the fact that unless this muscle is divided, the rectum is more likely to be torn. The membranous urethra having been exposed, the broad retractor is inserted at the base of the wound. He now opens the membranous urethra on a staff which had been previously inserted, and the edges of the urethra caught up by silk sutures. A good sized sound is then passed through the incision into the prostatic urethra and bladder.

Dr. Young's specially devised prostatic tractor is then passed into the bladder; the blades are rotated one hundred and eighty degrees, and then fixed by a thumb-screw. Lateral retractors are now introduced into the wound, making a fine exposure of the posterior surface of the prostate. The next step, which is unique with Dr. Young, is to incise the posterior surface of the prostate on either side of the median line for the entire length of the surface. This incision is about one c. m. deep converging slightly toward the upper end, being 1.5 c. m. apart in front, and 1.8 c. m. behind. Dr. Young claims that by leaving this bridge of tissue, the ejaculatory

ducts may be preserved in the majority of cases. The lateral lobes are now enucleated one at a time through this incision. The enucleation to the outer side of the lobes is performed before the inner, the latter being the more delicate procedure, as there is danger of tearing into the urethra. This is best done with a curved-blunt dissector.

Dr. Young has also devised a pair of forceps for extracting the lobes after enucleation. The median lobe is now enucleated through one of the lateral spaces with the aid of the prostatic retractor, which is rotated ninety degrees so that one blade makes pressure against the middle lobe. When it comes into sight, it is pushed with one index finger into one of the intra-capsular spaces. At this point the tractor which has been held by the operator up to now is taken by an assistant, who continues to make traction against the lobe, the operator using the index finger of one hand to press laterally and with the other he uses the extraction forceps to complete the removal.

In a recent conversation with Dr. Young, he tells me that of the younger patients upon whom he has operated, those between fifty and sixty, he believes that fifty per cent. will retain their sexual power. In the method which I have advocated in my paper above referred to, I recommend the prostatic tractor of Dr. Parker Sims which consists of an inflatable rubber ball on the end of a rubber shank, which is introduced by a steel staff and inflated or filled with water after the staff is withdrawn.

In comparing the merits of the two instruments which are the best thus far devised, I should say that the instrument of Dr. Sims has the advantage of acting as a tampon for controlling hemorrhage, while that of Dr. Young has the advantage of affording more definite traction in the direction desired. One should be familiar with the use of both. As to the after-treatment in these cases, we now employ at the Hartford Hospital, a double

drainage-tube consisting of one large, and one small tube sewed together. The larger is one c. m. in diameter, and the smaller a medium sized soft catheter. It is fastened into the wound by a suture passing through the larger drainage-tube, and fastened into the lower of the silk worm sutures at the upper part of the wound. Through these tubes continuous or intermittent irrigation can be carried on. If there is marked tendency to oozing, continuous irrigation with hot saline solution is desirable as it prevents clots. Later other medication can be employed locally in connection with the irrigation. Silver salts are frequently valuable where there has been marked purulent cystitis. The length of time for continuing the drainage depends upon the condition of the bladder. If the urine becomes clear, the tubes can be removed on the fourth or fifth day. It is not advisable to leave them in longer than a week, after which the bladder is irrigated through the perineal wound for a few days longer. The patient is allowed to sit up within a day or so after the removal of the drainage-tubes. The results which have been obtained by those who have performed the perineal operation in and about Hartford, are decidedly gratifying.

The author has operated upon fifteen cases, and as many more have been performed by other surgeons. Unless there exists some marked contra-indication to surgical intervention, a very favorable prognosis can be made in the majority of these cases.

Nearly all of our cases have been in men of advanced years, with degenerate arteries, with enfeebled kidneys, and some of them with serious heart-lesions, and at least one-third of the number have suffered from general sepsis before and at the time of the operation.

Of this series of thirty cases, not more than three can be said to have died as a result of the operation. My third case, in a very feeble man, aged thirty, died of acute pneumonia, following exposure some days after the

drainage-tube had been withdrawn. My only death as a direct result of the operation, was in an elderly man suffering from chronic interstitial nephritis, with marked arterio-sclerosis plus a valvular heart lesion. Catheterization had become difficult: he had been an invalid for several weeks, and was ready to face any danger rather than to live as he was. He took his anesthetic poorly, and bled from every vascular twig by reason of his hardened arteries. The operation had to be abandoned on account of his condition, and he died shortly after from shock and hemorrhage. It is doubtful if he could have withstood any surgical operation, and with so markedly degenerate arteries, in another case I should content myself with an external urethrotomy, stretching the vesical neck, and draining the bladder. If this much was well borne an attempt could be made to enucleate the prostate later.

Another fatal case which I think should not be attributed to the operation, was that of a man in the seventies, who apparently possessed favorable conditions for the operation. He entered St. Francis Hospital and on the day before the operation, following a watery evacuation of the bowels, he was taken with a severe chill, followed by high temperature. We debated as to the advisability of operating, but believing that the chill and temperature were due to systemic infection of bladder origin, we proceeded to operate. No difficulty or accident attended the operation, but his enfeebled condition of the day before continued. His bowels continued loose, and the abdomen became distended; the patient entering into a typhoid state five days after the operation. But we cannot expect to operate upon this class of patients without some deaths occurring and without some unpleasant symptoms remaining in those who survive.

The complications and sequelae that may follow this operation, are incontinence of urine, recto-urethral fis-

tula, and a continuation of purulent cystitis. Incontinence is usually the result of injury to the vesical neck, which will always be at times difficult to avoid, but which with improved technique and increased experience will become less frequent. The same may be said for the recto-urethral fistula. When operating with the Parker Sims retractor, which is held by an assistant, I invariably keep the left index finger in the rectum, while the right enucleates the several lobes of the prostate. In this way one can pretty surely guard against rectal injury. With the technique of Dr. Young, which I have described, this is not possible as the operator holds the retractor with one hand, and enucleates with the other, but as noted, the severance of the recto-urethralis muscle which allows the rectum to drop away from the prostate, protects the rectal wall without the finger in the rectum. When this accident does occur one should attempt to repair it at once, for if the condition persists, it is not only exceedingly uncomfortable for the patient, but may lead to early development of infection, and general sepsis.

The chronic cystitis which sometimes continues after the obstructing prostate is removed, cannot in some cases be overcome. The bladder mucosa has become so thoroughly diseased that pus will be secreted despite our best efforts.

We believe that we have proven by our work that the operation of enucleating the prostate gland has come to stay.

It behooves us to use careful judgment and discrimination in selecting the method of operation; to make very thorough examinations of our patients prior to operating; to know as nearly as possible the condition of their kidneys, their urine, the capacity and conditions of their bladders, the cystoscope should be brought into play and when possible the patient should have a few days of preliminary treatment, of bladder cleansing, of urine

antiseptising, of general tonics before an operation. The choice of anesthetics must be carefully considered, for we sometimes deal with badly diseased kidneys, and sometimes with patients suffering from chronic bronchitis and asthma, so that ether and chloroform may both be contra-indicated. In such cases local anesthesia by infiltration may be practiced or spinal anesthesia, using the method of Dr. Morton of California.

In conclusion, I would like to emphasize the importance of the perineal drainage in those cases where any of the various contra-indications to further operation may exist, as a means of tiding over the patient, and of prolonging life in the hope that something further and more radical can be done at a later time.

It seems to me this subject is full of broad possibilities, and is certainly deserving of the most careful and painstaking study and observation.

We certainly may felicitate ourselves that the greatest advances in this important line of surgery destined to prolong life and relieve suffering to thousands of elderly men is largely due to the ingenuity and the indefatigable efforts of our own American surgeons.

DISCUSSION.

Dr. McKnight: I simply want to add my testimony in favor of the Dr. Young operation. It makes prostatectomy instead of a hit-or-miss, happy-go-lucky sort of an operation, just as simple an operation as can be desired. It also leaves the parts in an excellent condition, the only injury to the bladder or urethra being at the point of incision. I have performed that operation a few times with excellent results.

The President: Any further discussion?

Dr. Lyon: Mr. President, I should like to add what I think about this operation. I have suffered from this trouble until at last it has entirely incapacitated me from doing any business since three years ago last November. Three years ago this month at the meeting of

the general association at St. Paul, I had a severe attack of cystitis which allowed me to get home but I barely lived through with the attack, accompanied also with nephritis which has lasted ever since. I went to Boston three years ago last November and was referred to Drs. Cabot & Cabot, and they examined me very carefully in every way and after considering my case for a couple of weeks, sent me home to take care of myself without giving me any hope of permanent relief, or attempting to do anything for me. I went on from that time from bad to worse growing worse all the time. I went to New York, I went to Philadelphia, I went to Baltimore and was in Baltimore for several weeks, and while this operation was just beginning to be performed more and more frequently, yet none of them advised it for me because the ultimate results of it were not established, and were not favorable enough. I came home and we began a few operations in Hartford, which were successful. I have been very anxious for three years to submit to the operation just as soon as my kidneys would allow me to take an anesthetic safely. I was not in a condition for quite a long while; but as soon as the experts and the physicians to whom I submitted myself for examination and advice were willing to undertake the case I put myself under the care of Dr. Smith, and I had the operation performed on the 21st day of last October.

It is needless to talk to you gentlemen about the pains of cystitis, resulting from a mechanical obstruction of this kind. We have all known what it is. I have known what it is for forty years. I could not do anything to relieve the pains, but simply tried to alleviate the pain. No operations were promising or successful enough to warrant anything being done, but I felt myself as if this was the only case that promised me any relief, and I was willing to take the risk then, although my kidneys were weak at the time. If I died in the operation it was better to die from that than to die from the cystitis such as

I have seen in my own patients in helpless cases. If I lived a little while and was comfortable from it, it was better than so much pain.

I will say that I have had no pain since the twenty-first day of last October, the day of the operation, no pain from this trouble. I have had to use the catheter frequently or rather I have had no occasion to use the catheter since except for irrigation.

I wish to say more than that, that the objections Dr. Smith has referred to as to incontinence of urine, I have never recovered control of yet, and I don't know as I ever shall. I shall still be thankful to the members of the profession who have developed this method, and are practicing it. I shall still be thankful that I submitted to the operation if I never obtain control of the urine.

It is a thousandfold better to be obliged to resort to the use of the urinal than it is to be obliged to resort to the use of the catheter constantly, and so far as the pain is concerned, it is nothing. I had rather be obliged to use the urinal all the time, than to use a catheter. I have had to use it, and suffer the pain that we do in these cases. At that time this operation was performed upon me in Hartford, I think I may say that according to my best knowledge it has been performed as many times in this state and in Hartford perhaps as many, as any other part of the state and more than it has in the city of Boston. And the very person to whom I went three years ago last November and who refused to entertain the idea of performing any operation on me, the same men are performing operations successfully to-day and doing it frequently, and it is being done all over the country. Until 1898 it was difficult for me to find anybody who would entertain the thought, and for months, while I was very anxious to have the operation performed upon me, there were but few surgeons that were willing to undertake it. I stand as a witness to bear my testimony to the good results of this operation. (Prolonged applause.)

THREE CASES OF OBSTRUCTION OF THE CYSTIC DUCT SIMULATING APPENDICITIS.

GEORGE R. HARRIS, M. D.,

NORWICH.

At the present time, diseases of the gall-bladder, including gall-stones, are causing as much or more interest than appendicitis; and many symptoms, which in years gone by, have been attributed to other diseases are now recognized as evidences of disease of this organ.

The more we study our own cases and the more we read the reports of the experiences of others, the more we are brought to realize the strong resemblance between affections of the gall-bladder and some other diseases, especially appendicitis, and the more uncertain becomes the diagnosis between these conditions.

In fact, some authorities go further and claim that they are usually both present, and that the conditions which favor an attack of appendicitis are identical with those preceding an attack of gall-stone colic.

This term, gall-stone colic, is a misnomer, as it is now pretty generally admitted that all the symptoms supposed to accompany an attack of gall-stone colic may be present, and on examination find no gall-stone. The terms hepatic colic or biliary colic, or gall-bladder colic would be more appropriate.

Concerning symptoms of appendicitis nothing will be said, as the subject is one which has been thoroughly and frequently gone over.

This will naturally lead us to a brief consideration of the diagnosis of what is commonly called hepatic colic.

What is the cause of hepatic colic? It is usually due to obstruction of either the common or cystic duct, with an accumulation of bile behind the obstruction, which

result in distention of the gall-bladder. Now this obstruction may be caused by gall-stones, thickened bile, bends or twists in the duct, from old adhesions, congestion of the membrane lining the duct, or by pressure from outside bodies, as glands, etc.

Regarding the formation of gall-stones there are two theories. One, that there is a chemical change in the bile which causes precipitation of its solid constituents. The second, that the infection of the gall-bladder with the colon bacillus, or the germ of typhoid fever, gives rise to cholecystitis and the secondary formation of stone. Thickened bile may occur in cholecystitis, especially in cases where old inflammatory changes remain, which cause bending or twisting of the gall-bladder or ducts. Congestion of mucous membrane also occurs in cases of cholecystitis.

In speaking of diagnosis, I will reprint Haggard's quotation of Ochsner, which appears in "The International Journal of Surgery" of February, 1904, which reads as follows:

"The symptoms which will most constantly lead to a correct diagnosis when gall-stones are present are not biliary colic, jaundice and passing of gall-stones with the feces, as we have been taught for many years, but (1) digestive disturbances, a feeling of weight or burning in the vicinity of the stomach after eating, gaseous distention of the abdomen; (2) a dull pain extending to the right from the epigastric region around the right side about at a level with the tenth rib, extending to a point near the spine and progressing upward under the right shoulder-blade; (3) a point of tenderness on pressure between the ninth costal cartilage on the right side and the umbilicus; (4) a history of having had one or more attacks of appendicitis or typhoid fever; (5) in many of these cases there is a slight tinge of yellow in the skin, not sufficient to be recognized as icterus, but still sufficient to be perceptible upon close inspection, especi-

ally on the days on which the patient is not feeling very well, when she complains of feeling bilious; (6) there is usually an increase in the area of liver dulness; (7) there may be a swelling of variable size opposite the end of the ninth rib."

The increased sensitiveness over the gall-bladder is a very valuable sign.. Many times you can outline the gall-bladder, especially when the liver is forced downward by a deep inspiration. These symptoms, followed by the acute attack of colic with its pain in the epigastrium, and sometimes radiating, nausea and vomiting, abdominal tenderness most marked over the gall-bladder, with rigidity of the right rectus muscle, and occasional jaundice, are what we must rely on in making our diagnosis in favor of the gall-bladder.

Although it does seem as if a diagnosis between hepatic colic and appendicitis was an easy one to make, nevertheless, there are cases where it is very difficult, and I have operated on three cases, in one of which the diagnosis was not made until after the incision, and the other two, only after the patients were thoroughly anesthetized.

On July twenty-sixth, 1897, Mrs. B., a widow, aged seventy-six, American, called me and stated that although usually in good health and a hearty eater, on the day before my call, she had been taken sick with what she called an attack of indigestion and was confined to her bed.

She had vomited profusely, had marked tenderness in the epigastric region. I diagnosed the case as gastro enteritis and gave usual remedies. Did not see her the next day, but on the twenty-eighth was again called and found that she had grown much worse, after a slight improvement lasting several hours. Her vomiting had grown more frequent and she now had considerable diarrhea, with much more pain than when I first saw her and the pain was to the right of the median line in

the neighborhood of McBurney's Point. Had temperature of 99 1-2 and pulse 100. Right rectus muscle very rigid; percussion on right side gave dullness most marked in vicinity of McBurney's Point. She had considerable distention of abdomen and appeared very sick.

This woman was carried into the Hospital and seen by several men, at a consultation called for that purpose, and declared by everyone to be a case of appendicitis. She was etherized, the abdomen opened and a normal appendix brought out and removed. Further examination revealed a smooth, elongated body, about six inches in length and about two and one-half inches in diameter, presenting at the upper angle of the wound; this was easily recognized as the gall-bladder. Its wall was very firm and tense and there were no adhesions to surrounding parts. The opening was enlarged; it was brought out through the wound, thoroughly walled off from the abdominal cavity with gauze, opened and emptied, an artery clamp retaining the bladder in position and preventing its returning into the abdominal cavity. The contents seemed to be bile which was not much changed in appearance from normal bile.

A scoop now brought out two fairly large stones with rough surfaces and with facets. These were in the portion of the bladder nearest the neck and required some little maneuvering to release them. The duct was not thoroughly examined and no other enlargements were found. I now packed the gall-bladder full of gauze to absorb the bile which was flowing quite freely, and stitched the bladder to the upper end of the abdominal wound and then closed the rest of the wound. Suitable dressing was applied and the patient was removed to the ward where she made an interrupted recovery, the sinus remaining open and discharging more or less for six months. She has since had no trouble.

Now this case gave no history of previous stomach affections and on my first visit was to all intents and

purposes merely a case of gastric enteritis, although she did have an enlarged liver extending about three finger's breadth below the ribs. On my next visit the abdomen was distended and tympanitic and I could get but little information from palpation or percussion, and tenderness was most marked about one-half inch above McBurney's Point. She had no jaundice.

April sixteenth, 1903, was called to Taftville to see Mrs. R., a strong, vigorous, and very fleshy French woman, aged forty-two; married and mother of twelve children. For a few days she had had pain in the right side just above McBurney's Point. This had grown worse and she had had nausea and vomiting with considerable prostration.

She was sent to a Hospital where her condition was diagnosed as appendicitis, with some little hesitation, because of the location of the pain. Her right rectus was very rigid. On taking ether, the diagnosis was quickly cleared up and a large tumor continuous and attached to the liver appeared, as the anesthetic relaxed the muscles. She was operated upon and the gall-bladder opened and drained. Nine good sized stones were removed. The bladder was sutured, as in other cases. She made a good recovery and has had no trouble since. The sinus remained open about seven months, closing in November.

On December eighth, 1903, was called to North Westchester to see Mrs. O., a German woman of about forty five, married and had had several children. When I saw her she had been sick about twenty hours with symptoms of appendicitis, severe pain in right side, nausea, vomiting, slight elevation of temperature. On examination found abdomen much distended and tympanitic and very sensitive on pressure, the most sensitive spot being again just above McBurney's Point, and she also had a rigid right rectus.

The case was decided to be one of either appendicitis

or obstruction of the gall-duct. She was etherized and the enlarged gall-bladder could be easily mapped out. The abdomen was opened and the bladder emptied in the manner described above. Nineteen stones were secured. No thickening of the duct could be found. The bladder was sewed to the skin and packed. She got along in good shape and works hard and has had no trouble since. Her sinus closed in a little over three months.

Before anesthesia these two cases resembled attacks of appendicitis; the ether however, quickly cleared up the diagnosis.

In the great majority of cases the differential diagnosis is easily made, but there are cases where, unless you have watched the case from the commencement of the attack and have had opportunities for thorough examination, it will be very difficult indeed for you to state positively what causes the nausea and vomiting, the slight elevation of temperature and rapid pulse, or whether the distended tympanitic and sensitive abdomen with its rigid right rectus muscle contains an inflamed appendix or a distended gall-bladder.

CYSTS OF THE MESENTERY.

EVERETT JAMES McKNIGHT, A.B.,M.D.,

HARTFORD.

I desire in connection with the relation of a case of cyst of the mesentery which has recently come under my observation to briefly call your attention to these unusual formations. They occur very infrequently and are rarely diagnosed as such, usually being discovered during operations undertaken for some other supposed condition. During the last few years, however, this subject has been given extensive investigation, especially by Dowd of New York, and it is probable that we are now in possession of sufficient knowledge to enable us in many cases to make a correct diagnosis before operation.

Sir Spencer Wells, in the second edition of his work on abdominal tumors, says, " My last work on ovarian and uterine tumors was published in 1882. Up to that date I had not met with a case of mesenteric cyst, nor with a large mesenteric tumor; but within a month I had opened and drained a large mesenteric cyst, and had removed a large mesenteric tumor. Since that time I have not seen another."

Augagneur in 1885 found recorded only nineteen mesenteric cysts.

Greig Smith in the sixth edition of his work on abdominal surgery published in 1897, states (page 1065) that about fifty cases of operation for mesenteric cysts had been recorded. In the same year, however, (1897) Moynihan was able to gather one hundred and thirteen cases. Probably the latest statistics are those of Dowd, who in 1899 found references to one hundred and forty-five cases.

Lawson Tait in his large experience never met with a case.

In recent surgical works little or no mention is made of these growths.

The case to be reported is the only one which has come under my observation, either in my personal experience, or in that of those with whom I have been associated.

The first reference to these cases of any importance was probably by Portal, who in 1803, gave a complete classification of mesenteric tumors, dividing them into "scirrhus, steatomatous, petrous, cancerous and hydatid." Each pathological type was said to be accompanied by definite clinical phenomena. Portal emphasized the difficulty of making a differential diagnosis between tumors of the omentum and mesentery. Little, however, was done in the systematic study of these cysts until "antiseptics made possible the surgery of the abdomen."

Virchow (Berliner Klinische Wochenschrift, 1887, No. 14) stated in presenting before a medical society a preparation of a multilocular mesenteric cyst, that he was in possession of no satisfactory experience in reference to the origin of these formations. He assumed that they arose from degenerated mesenteric glands.

Hahn, in the same year, read an elaborate paper on this subject, before the Berlin Medical Society, (Berliner Klinische Wochenschrift, June 6, 1887) from which the writer has drawn largely in the preparation of this paper.

On December 27, 1899, Dr. Chas. N. Dowd of New York, reported in a paper read before the New York Surgical Society, a case of multilocular cyst-adenoma in the transverse mesocolon, which contained pseudo-mucin and which was exactly like a cyst-adenoma of the ovary, suggesting its probable origin as an embryonic ovarian sequestration. This article was most exhaustive and

probably contained all of our present knowledge in relation to these growths. He was able to find references to one hundred and forty-five cases, many of which, however, were but imperfectly reported.

Although fibromata, myxomata, enchondromata and sarcomata have also been found in the mesentery, it is only necessary, clinically to consider lipomata and cysts. The former often attain great size as one reported to the Academy of Medicine, Paris, by Terillon, who successfully removed a fatty tumor weighing fifty-seven pounds by enucleation from between the layers of the mesentery.

Homans, of Boston, reports two cases of removal of large fatty tumors, which were probably of mesenteric origin.

Waldeyer and others have also reported large growths of this character.

It is probable that many of these as well as some of the larger cysts reported were retroperitoneal in origin, and by their growth and extension separated the mesenteric folds so that it was impossible to distinguish them from true mesenteric growths.

I have already referred to the classification of Cysts made by Portal in 1803. Later writers have divided them into serous cysts, chyle cysts, hydatid cysts, blood cysts and dermoid cysts.

The time which has elapsed since being asked to prepare a paper for this meeting has been so short that I have been unable to give the subject very extensive consideration.

I am convinced, however, that Dowd's classification will be found to be correct and that the chylous, sanguineous and serous cysts of the older writers will prove to be only modifications of embryonic cysts.

Dowd says, "It is probable that all mesenteric cysts may be included in the classifications.

(1) Embryonic cysts, (2) Hydatid cysts, (3) Cystic malignant disease.

My own case was that of a boy thirteen years of age, who for years had had occasional pains, colicky in nature, lasting sometimes for only a few minutes, at others a few hours and sometimes covering a period of two or three days. These were usually associated with vomiting and obstinate constipation. The last attack was on February seventh, 1904, two weeks before he was seen by me. During that time there had been obstinate vomiting and no movement of the bowels. There had been fecal vomiting for a period of two or three days before my visit. His condition was very grave, the pulse being very weak and rapid, although the temperature was normal. The abdomen was distended but dull upon percussion over its entire extent. There was a marked fluid wave, which, however, was evidently due to liquid in the intestines as the coils of distended gut could be easily made out by inspection of the abdominal wall. Although it was very doubtful if he could survive exploration, it was advised, and allowed by the parents. An incision was made through the right rectus, and the ileo-cecal region, which was supposed to be the seat of the trouble, was brought into view. Nothing abnormal was found at that point and the collapsed ileum was followed back for two or three feet, where it was found to apparently pass twice around another portion of intestine, the whole being adherent to a mass filling the pelvis. This was with little difficulty lifted out of the pelvis and proved to be a tumor filled with fluid attached to the side of the intestine and a portion of its mesentery. The tumor had evidently turned twice on its axis to the patient's left, causing torsion of the gut, and settled in the pelvis where it was held immovable. Upon rotating it back to the patient's right, the obstruction was immediately and entirely relieved. There were absolutely no adhesions and no evidence whatever of peritoneal in-

fection. At this point the patient, whose pulse had been for some time almost imperceptible, expired. The tumor which I at first supposed to be a diverticulum was hastily separated from the bowel with the lumen of which it was found to have no communication.

Upon examination the tumor was found to be a cyst about four and one-half by three inches in size covered with peritoneum which was continuous with that of the mesentery and intestine somewhat pedunculated and entirely free from adhesions to surrounding organs. An examination by Dr. E. R. Lampson showed the contents to be fluid, pinkish red in color, thick in consistency, with a specific gravity of 1060; microscopically it contained broken-down red blood-cells, a few epithelial cells, detritus and numerous cholesterol crystals.

Dr. Walter R. Steiner, who examined the cyst wall, reports as follows: "Cross sections of the cyst wall show it to be composed of four layers. The inner layer is made up of non-ciliated columnar epithelium beneath which is seen a loose network of fibro-elastic tissue, containing blood-vessels. The third layer is made up of smooth muscle, mostly cut longitudinally, while the last and outer layer is fibrous in character and somewhat vascular. There is no evidence anywhere of malignancy. The tumor is evidently of embryonic origin."

The very distressing conditions attending this operation and the tragic ending interfered with a careful examination of the site of the tumor. It was apparent to the writer, however, that it originated directly under the peritoneum on one side of the mesentery close to the intestine and gradually pushed its way up on the side of the intestine under the peritoneum. There were no evidences of any recent or remote inflammatory process, or any obstruction to the lumen of the bowel. The surrounding mesentery was normal in every particular. The distended gut above the obstruction was not gangrenous, but very dark in color. The presence of red

blood-cells was probably accidental; due to the increased blood-pressure in the wall of the cyst. It is to be regretted that at the time we did not recognize the great rarity of the case and secure a more thorough examination of the contents, as it is probable that such examination would have added something to our knowledge of the cause and the origin of these rare formations. From the location of the cyst and the presence of a well-defined epithelial lining, it must be considered of embryonic origin.

OBITUARIES.

*Full of repentance,
Continual meditations, tears and sorrows,
He gave his honours to the world again,
His blessed part to heaven, and slept in peace.*

—HENRY VIII, iv, 2.

**ANDREW J. FULLER, M.D.,
BATH, MAINE.**

Dr. Andrew Jacob Fuller was born in the town of Paris, Oxford County, Maine, Sept. 15, 1817. He received his education in the common schools of Paris and at Hebron Academy. After leaving this Academy he taught school in Paris and soon after began the study of medicine with Dr. Prescott, of Bath. He attended medical lectures at Bowdoin Medical School and graduated in 1841. His first settlement was in the town of Searsmont, Waldo County, where he remained until 1847, when he removed to Bath, where he remained in continuous practice until within a short time of his death, which occurred January 10, 1897. The cause of his death was given as Senility.

For many years he enjoyed a lucrative practice, making a specialty of surgery. He was the first surgeon in Maine to successfully amputate the thigh at the hip joint.

His temperament led him to find time for public affairs. He was elected to the Common Council and was once a candidate for Mayor of Bath.

He served as President of the Bath Board of Trade for twenty-one years and was the President of the first Board of Health established in Bath. He was one of the founders of *this Association and was its President in 1871.

He joined the American Medical Association in 1865 and was its First Vice President in 1879. He was a Trustee of the Maine Insane Hospital for two years and was consulting surgeon to the Maine General Hospital for many years. He was a constant attendant at the meetings of this Association and took an active part in

*From Transactions Maine Medical Association.

the deliberations of its sessions. His individuality and venerable presence will be long remembered by the older members of the Association.

In politics he was always a Democrat. He became interested in Masonry early in life and served as Master of Solar Lodge, High Priest of Montgomery Chapter, Bath, and was Grand High Priest of the Grand Chapter of Maine, positions which he filled with signal ability.

In 1843, he married Harriet McLellan Marston, who bore to him three children, one of whom, a daughter, Mrs. Julia A. Barker, survives him.

In the death of Dr. Fuller this Association loses a genial and conscientious member, and removes from our midst one of the last members of the old school of medicine, one who had practiced medicine continuously for fifty-six years, and ministered in that time to thousands of the victims of disease. May his memory ever remain green in our hearts.

E. M. F.

**ARTHUR WARD, M.D.,
NEWARK, NEW JERSEY.**

Arthur Ward was born at Belleville, N. J., December twenty-three, 1823, and died at Newark, N. J., July sixth, 1902. He was the son of Samuel L. Ward, M. D., for many years a practicing physician in Belleville. His mother was Caroline Bruen Ward. Arthur Ward was educated at Bacon Academy, Colchester, Conn. After leaving the academy he entered Yale College, from which he received the degree of Bachelor of Arts in the class of 1844. Subsequently Yale conferred the Master's degree upon him. After graduation he took up the study of medicine under his father, and with the late Thomas Cock, M. D., of New York, who was one of the founders of the College of Physicians and Surgeons. He pursued his studies in the college, which, in 1847 conferred upon him the degree of Doctor in Medicine. Soon after he began practice in Newark. After a year here he removed to Belleville where he remained until 1865. Meanwhile his Newark practice became so large that he again removed to Newark. At the time of the establishment of the Hospital of St. Barnabas, he was made one of the attending staff. His connection with the Hospital terminated only with his death. For several years he had been president of the Medical Board. The Essex District Medical Society also honored him. In 1868 he was president of *this Society. When the Medical Society of New Jersey created the office of permanent delegate, Dr. Ward was one of the six selected to represent this Society. He was permanent delegate at the time of his death. He was also a member of the Medical and

* From Proceedings Medical Society of New Jersey.

Surgical Society of Newark, and had been at one time its president. He was also a corresponding member of the Medical Society of Connecticut, and a life member of the New Jersey Historical Society. He was for many years an elder of the North Reformed Dutch Church of this city.

In 1854 he married Anna C. Lee, daughter of Robert Lee, of Rahway. The death of Mrs. Ward was preceded by a long and harassing illness. Dr. Ward's care of her was marked by a tireless devotion; hopeful when to others everything seemed hopeless. Her death broke him down, and three months later he followed her.

HENRY CLINTON BUNCE, M.D.,
GLASTONBURY.

W. J. KINGSBURY, M.D.,

GLASTONBURY.

Henry Clinton Bunce, son of Herman Bunce, a paper manufacturer, and Philomena (Simons) Bunce, was born in Manchester, Conn., January 17th, 1825. He received his education in the Manchester Schools and at the age of seventeen began to teach in Manchester, leaving there to teach in New Jersey.

During the six or seven years he was engaged in teaching, he spent a part of each year riding and studying medicine with Dr. Scott, of Manchester.

In 1850 he graduated from the Yale Medical School and immediately began to practice in Glastonbury where he succeeded to the practice of Dr. Ralph Carter. Dr. Bunce was married November 6th, 1850 to Miss Eliza Rich, of Manchester, who survives him. Six children were born to them, three of whom, Charles S., of Glastonbury, Helen J., of New Britain, and John W., of Rochester, N. Y., are now living. Dr. Bunce died April fifteenth, 1903, of mitral stenosis.

October tenth, 1862 he entered the army as assistant surgeon in the First Regiment C. V. Heavy Artillery and went at once to the front where he suffered sunstroke and was granted leave of absence. On returning to his post and finding himself unable to resume his duties, he resigned October eighteenth 1863, and returned to his practice in Glastonbury.

For nearly half a century he has been a member of this Society. He was Medical Examiner for Glastonbury from the time the office was established until his death.

He was also post surgeon, and for a number of years Health Officer for the town. Always a Republican in politics he was adverse to holding office but was at one time Town Treasurer. For a great many years he was an active member of the First Congregational church.

A man of keen perception, sound judgment, careful and painstaking, Dr. Bunce soon established a large practice which he held firmly until increasing physical infirmities made it impossible for him to continue in active practice. With the prestige given by his service in the army he made himself the foremost surgeon in a large territory and his services were in frequent demand for many operations of no small importance. With the advent of new methods he yielded the field to those whose training had put them in touch with the new ideas, but he retained all of his interest in things surgical, and only a few months before his death in conversation with the writer he manifested an intense interest in Edebohl's decapsulation operation for Chronic Bright's disease, regretting that such work had been impossible twenty-five or thirty years ago.

Dr. Bunce gave of himself freely to his patients, and to the last was held in high esteem by a large number to whom he had endeared himself by his skilful and tender care.

**WILLIAM LOCKWOOD BRADLEY, M.D., NEW
HAVEN.**

BY SAMUEL D. GILBERT, M.D.

NEW HAVEN.

William Lockwood Bradley, the son of Leonard and Charlotte Selleck (Lockwood) Bradley, was born on October eleventh, 1837, in New York City. In 1842 his father moved to New Haven, and became one of her most prominent merchants, living for many years in a fine old colonial mansion on State street, between Court and Elm streets. The house is still standing, but its front has been altered into stores. Dr. Bradley was first a pupil of the Hopkins Grammar School during the rectorship of Edward Olmstead. He completed his preparatory course of college in Williston Seminary, and entered Yale and graduated with the class of 1860, (I quote now from the Yale Obituary Record of 1903). "He entered the Yale Medical School, but after a few months left to assume the duties of Medical Cadet at Mrs. Kim's Mansion Hospital in Baltimore. In the autumn of 1862 he entered Bellevue Hospital, New York, but went abroad in the following February, and spent eleven months in the hospitals of Paris, and three months in travel and medical observation on the continent and in Great Britain. He received the degree of M. D. at Yale in 1864, and in June of the same year began practice in New Haven. From 1865 to 1877 he was demonstrator of anatomy in the Yale Medical School." (The writer well remembers his courteous and painstaking instructions when he was a medical student.) "From 1866 to 1869 Dr. Bradley was Secretary and Treasurer of the New Haven Medical Association. He was appointed one

of the staff of the Connecticut General Hospital at New Haven, in 1871, a Director in 1878 and afterward a member of the Prudential Committee."

During his hospital attendance Dr. Bradley had under his care the first case of skin-grafting in that institution, a young woman whose scalp had been torn off in a machinery accident was treated by him with restoration of her scalp. Dr. Bradley was an able and conscientious practitioner, beloved by his patients, and devoted to their interests. He was a man of sterling Puritan character, warm in his emotions, always ready to express his opinion in a decided manner and to defend them valiantly. He was no "trimmer" but was always honest, and true. The last years of his life were spent in a quiet unassuming way, but he retained to the last his studious interest in medicine. Dr. Bradley was never married, but lived happily with his sisters in a congenial home circle which centered in him. He was an earnest Christian man, a member of the Center Congregational Church in New Haven since 1859, and for many years a faithful attendant at its services. He died very suddenly of heart disease June 12th, 1903.

EDWARD LUTHER GRIGGS, M.D.,
WATERBURY.

CHARLES S. RODMAN, M.D.,
WATERBURY.

Edward Luther Griggs, one of the best known and most respected of the physicians of Waterbury, oldest member of our society residing in that city, died suddenly at his home on January sixth, 1904. Descended of an ancestry that settled in New England early in the seventeenth century and which became conspicuous for public service and valor in colonial and revolutionary times, inheriting a competence, he retired from active practice about ten years ago. Dr. Griggs retained from the outset a position upon the staff of the Waterbury Hospital and was often called as a consultant, a position to which he was admirably fitted by reason of his professional knowledge, his independence and absolute integrity.

The History of Waterbury has the following to say of Dr. Griggs:

"Edward L. Griggs, the youngest of the four sons of Charles and Frances C. (Drake) Griggs, was born in South Windsor, July 18, 1838. In 1845, he removed with his family to Waterbury, and studied at the Academy until 15 years of age. After serving as an apothecary's assistant for four years, he began the study of medicine, and spent two years at the Yale Medical College, and one at Long Island College Hospital. He received his medical decree in 1864, and since that time has resided in Waterbury. Dr. Griggs was unmarried, and led a somewhat retired life. He was recognized not only as a physician of exceptional learning and ability, but as a gentleman whose personal traits rendered him especial-

ly attractive to those who knew him well. His very positive opinions were so quaintly expressed that they were always interesting, and his attacks upon the evils of the times were lighted up by the corruscations of a refined wit. He was not only an unique conversationalist, but a skilful musician."



RALPH SCHUYLER GOODWIN, M.D.,
THOMASTON.

Dr. Goodwin was a descendant of one of the original settlers of the state, Ozias Goodwin, a pioneer with Rev. Thomas Hooker of Hartford.

The subject of our sketch was a son of Charles and Jane (Guilford) Goodwin of Litchfield. He was born in that town June 24, 1839. He received his education at the Academies of Watertown and Waterbury in this state, Binghamton, N. Y., and the New York State Normal School, from which he graduated in 1863. The two following years he taught in the Brooklyn Collegiate and Polytechnic Institute. He began studying medicine with Dr. Burr of Binghamton, it being customary in those days to have a preceptor. In 1866 he graduated from the College of Physicians and Surgeons, N. Y.

In February, 1867, he married Miss Jeanie Edith Irwin, a native of New York City, and settled in what was then known as Plymouth Hollow. The Hartford turnpike passing the Congregational Church descends for nearly a mile into a deep valley extending from north to south, about a mile and a half. This was called Plymouth Hollow, a flourishing little village containing fifty years ago, a cotton mill and three clock factories. The clock factories belonging to Messrs. Terry and Thomas, were extensive and with Mr. Terry originated, it is believed, the manufacture of small wooden clocks. This manufacture has been largely extended and has caused the village to grow into a thriving and prosperous town, named from Seth Thomas.

There was at that time but one resident physician in the locality, but Dr. Goodwin has seen sixteen doctors

come and go since he established himself.

He came to have a strong hold upon the people of his town. In season and out of season, for pay and simply from the higher motive of love, in exposure and risk, for years he ministered unto them. He grew to be the leading physician in his county. And not only this, but he was known throughout the state. In 1884 Dr. C. A. Lindsley was elected Secretary of the State Board of Health in place of Dr. Chamberlain, who died. Dr. Lindsley was a regular member of the Board and a vacancy thus arising, Dr. Goodwin was chosen to fill it. This position he held until failing health induced him to retire at the expiration of his term in 1903. He became also a member of the American Public Health Association, a body of distinguished sanitarians, whose meetings were always a notable event in the cities where they were held. Dr. Goodwin always attended these and besides keeping in touch with the leading questions in sanitation, gained much experience in travel. The annual reports of the State Board contain his résumé of those meetings.

In 1897 he was elected President of the Connecticut Medical Society. Dr. Orlando Brown of Washington, was the only living member in the County who had attained to that honor conferred by the Fellow Physicians of his own state. His work in that Society from the time of his joining it has been collated by the Secretary in his annual report and is on page 96 of this issue of the Proceedings.

Nor was his life limited to his profession, broad as it might thus have been. For ten years he was school visitor of the town. As member of the Board of Education, he kept his finger on the educational pulse. He had scholarly tastes and intellectual gifts, a kindly sympathetic nature, prudence and skill in the management of his own affairs, performing the ordinary duties of the

citizen with faithfulness and intelligence. He had traveled extensively and gave to others the benefits of his observation and experience in letters which he wrote to the local press.

He had two children; one a physician, a worthy member of this Society has succeeded to his father's practice and has assumed charge of the home. The other, a daughter, graduated from Vassar, was married and in seventeen months thereafter died. Her father's heart went into the grave with her for he was very fond of her, and it probably hastened his death.

Four weeks before the final call came the premonition. During that time he lay upon his bed and talked as calmly of approaching death as though he were contemplating a journey to Europe. He has left for us this record of his thought, this testimony of his soul which seems to us as if it came from the life beyond.

"For thirty-seven years I have walked the streets of Thomaston, and driven over these hills. I have answered the call of distress. I have tried to relieve suffering, to prolong life and soothe the dying. I have attended more than 1,500 births, have seen more than 1,000 persons pass out of life. I have tried to do good in my own way. I am not going to do it any more. I am tired now and I must rest. Disease is upon me and the end is probably not far off. I pray the prayer of the Psalmist, "O spare me a little that I may recover my strength, before I go hence," but I hardly expect it, and I would rather go now, while in the full possession of my faculties, than to linger in suffering or to lapse into unconsciousness. Give this as my parting message to the people of Thomaston. I die sustained and cheered by the faith of the Christian. I may have had my doubts and questionings, but I put them all aside. There are some things difficult to understand. I do not understand them yet, but I believe. In yonder cemetery upon the

hillside, where we buried our beloved daughter, my wife and I have had placed a monument surmounted by a figure emblematical of Hope. That hope is mine,—the hope of eternal life. When a young man, I entered the Congregational Church. After some years, I brought a letter to this Church here. I am still loyal to that Church. I have not done so much work in the Church as I wish I had or as I would have been glad to do. My professional work interfered. The calls of sickness and accident will not wait. A physician must be ready to respond at once. I have tried to do my duty. I have tried to make the world a little brighter and better. I hope I have succeeded in some small measure."

JAMES WILLIAM GORDON, A.B., M.D.,
SANDY HOOK.

EDWARDS M. SMITH, M.D.,

BRIDGEPORT.

James William Gordon, M.D., died in Sandy Hook, January twenty-sixth, 1904, in the forty-second year of his age. He was born in St. Louis, Mo., on December twenty-second, 1862, of Scotch-Irish parentage, his paternal grandfather being quite a noted surgeon of his day in Glasgow. His father dying when he was six years old, his mother came East with him and located among friends in the town of Newtown, Conn., where the future Doctor attended the public schools of the town until his sixteenth year when he entered St. Charles' College at Ellicott City, Md., and took a three years' course there, after which he completed his studies at St. John's College, Fordham, N. Y., from which institution he received his A.B. degree in 1885. He at once took up the study of medicine in the office of the late Dr. Robert Hubbard of Bridgeport, matriculated in the medical department of the University of the City of New York in the Fall of 1885, and was graduated from Bellevue Medical College, receiving his M.D. in 1888. After two years of service in the city hospitals of New York, the Doctor located in Bridgeport, where he practiced for four years, during which time he served as physician to the County Jail for a while, and for three years was on the staff of the Emergency Hospital.

Thinking that the dryer air further inland would prove beneficial to an annoying bronchitis, Dr. Gordon moved from Bridgeport to Sandy Hook, Conn., where he opened an office in July, 1895, and where he quickly built up a

good practice, and took a prominent part in the affairs of the town, serving for a number of years until his death as a member of the Board of Education, where his influence was always felt on the side of progress and advancement. He was one of the prime movers in establishing a public High School in Newtown, and at the time of his death was serving as a member of the High School Committee. The Doctor was a member of the Bridgeport Medical Association, the Fairfield County Medical Association, and the Connecticut Medical Society; he was also a member of the Ancient Order of Foresters of America, and a leading member of St. Rose (R. C.) Church, from whence his funeral was very largely attended January twenty-eighth, 1904.

Dr. Gordon while a man of few words was of positive opinions and had the courage of his convictions. In his public positions he was independent in his actions, always standing for that which he believed was for the best public good. As a physician he enjoyed a large and loyal clientele to which he was thoroughly devoted and by whom he was beloved. No one knows better than the writer the arduousness and exacting demands upon a man of a large country practice and to this Dr. Gordon was not found wanting—remaining actively in the harness until within a few weeks of his death, although his health had been failing for more than a year.

In June, 1890, Dr. Gordon was married to Miss Louisa Telzmann of Kingston, Ontario, Canada, who with one daughter, Margaret Dorette, survives him.

IDA R. GRIDLEY CASE, M.D.,
COLLINSVILLE.

PAUL PLUMMER, M.D.,

COLLINSVILLE.

Ida Rachel Gridley was born in the town of Canton, November 3, 1862, of good old New England stock, she being a relative of the celebrated John Brown of Ossawatimie. Her early life was passed on the homestead farm, and she attended the schools of the district, graduating from the Collinsville High School in the class of 1880. According to the statements of her teachers, she was an exceedingly bright and conscientious student. Later she entered Wesleyan University, graduating from that institution with very high honors in the class of '84. While attending the University the naturally scientific and investigating trend of her mind decided her to study medicine and she accordingly entered the P. & S. Medical School in Boston. This school was not of her own selection but at that time was almost the only one that was co-educational, and it was that or nothing. Had she been able to enter the school for which her high mental abilities qualified her, she would undoubtedly have been a graduate of Harvard or Johns Hopkins.

On graduating, she went to New York and took a course in the Post Graduate Hospital, paying especial attention to diseases of the eye.

She finally located in her home place, Canton, and took up general practice but still kept up her special work on the eye.

On December twenty-seventh, 1894, she was married to Oliver Case, of Canton, one child, a daughter, being born April third, 1896. As the marriage was unhappy, she obtained a divorce.

It is the usual custom in obituaries to speak only of the pleasant and beautiful characteristics of the deceased. Dr. Gridley detested this and the writer has often heard her say: "I hope if anyone ever writes my obituary they will tell the truth, the whole truth and nothing but the truth." This being her desire, the writer has tried to respect her wishes.

Professionally, Dr. Gridley was qualified to fill a much larger field than the sphere in which her lot was cast. A close, conscientious and deep student, well-read and "up to date," she at times surprised her professional brothers by the depth and thoroughness of her knowledge. Well does the writer remember the astonishment of one eminent gentleman who came in consultation from a distant city, to find that all had been done, nothing was at fault, and that the line of procedure for future treatment was what he was compelled to advise. Turning to the family, he informed them that he thought they were to be congratulated on their physician and that in the future he should decline to come when she was in attendance as he was sure he should find nothing to do.

Dr. Gridley had many oddities and peculiarities. On some she rather prided herself. She was exceedingly blunt and plain spoken at times and no one, high or low, ever had any doubt as to her opinion. This many times made her misunderstood and in some cases alienated friends and patients, but, to use her own expression, she "could not 'soft-soap' people," and she pursued her own way, confident that in time right, truth, and justice would prevail. But with it all she was a good, true, womanly woman, valued as a friend by many, and beloved by the poor, to whom she was more than kind. The Bible says "let not your left hand know what your right hand doeth," and she followed this injunction to the letter. No one but those benefited know of the many acts of kindness of this noble woman. To be poor, to be in trouble, was sufficient to command her services, both

professionally and as a friend. If one lived fourteen miles away in the wilderness and could not get a physician, and especially if they had nothing to pay with, all they had to do was to send for Dr. Gridley and if anyone could get there, she would. Monetary remuneration, it often seemed, was her last thought. This, many times, made her the victim of designing people, but in spite of these experiences she to the last, kept sweet her faith in man and God. It was in taking one of these drives or rather a series of them, that she contracted the cold which resulted in pneumonia that caused her death.

The statement has been made that we never appreciate a thing till we lose it; and many are just beginning to realize what a loss the community has sustained in her death.

She was an active member of Trinity Episcopal church, but I do not remember ever to have heard her speak on religious subjects. She was a believer in acts and deeds, not in words, and certainly if one may judge from her life and acts, she was a close follower of the Great Nazarene, and it is not to be doubted that if we who stood by her bedside, as her spirit returned to the God who gave it, could have looked beyond the vale, we should have heard the voice of her Redeemer saying: "Well done, thou good and faithful servant! Enter thou into the joy of thy Lord."

SAMUEL SALISBURY LATHROP, M.D., NORWICH.

WILLIAM WITTER, M.D.,

NORWICH.

The death of Dr. Samuel S. Lathrop occurred in Norwich on November eighth, 1903. Dr. Lathrop was the youngest son of Edwin and Lydia Lathrop and was born in Griswold, June fifth, 1864. After attending the public schools, he entered the Norwich Free Academy, from which he was graduated in 1884. After his graduation he taught school for a time, having the purpose of soon entering college. Later on he engaged in business and finally decided to make his life work the practice of medicine.

He commenced his professional studies in New York City, where he was graduated from the College of Physicians and Surgeons in 1900. Immediately after graduation he began practice in Norwich. In 1903 he took a post-graduate course in pathology and bacteriology at his Alma Mater, and on his return to Norwich was appointed pathologist to the William W. Backus Hospital, where a pathological and bacteriological laboratory was equipped under his direction. At the time of his death he was a member of the Connecticut Medical Society and the New London County Medical Association and Secretary of the Norwich City Medical Association.

The death of Dr. Lathrop resulted from an accidental collision with an automobile. Seldom has the community in which he lived been more shocked than by the news of this calamity. Seldom is there a death so hard to reconcile. The medical profession had already begun to regard Dr. Lathrop as one of the most promising of young physicians. His high ideals and devotion to his work, together with his thorough equipment and winning

personality warranted the expectation that he would rise to a commanding place in the medical world of Norwich. Upon his death the members of his profession and the societies to which he belonged joined with his friends in their tributes of esteem and sorrow.

From the beginning of his practice Dr. Lathrop was associated with his uncle, Dr. William Witter, a relation which proved particularly happy. His marriage on November fifth, 1902, to Miss Janet Torrance of Norwich who survives him, served to render still more pleasant the beginning of his professional life. He was especially fond of his home. Perhaps he lacked some of the self-assurance and aggressiveness which are sometimes the means of the most rapid advancement. His was that sensitive and sympathetic disposition which, while it often causes one to seem retiring or exclusive, is most helpful in contact with the wounds and weaknesses of life. Combining to a somewhat exceptional extent the faculty of seeing the amusing in common affairs with a sincere and sympathetic interest in the welfare of others he was in the fullest sense a companionable friend. While he practiced the "divine art of healing," he understood more fully than most young men the divine art of living. So far as human judgment goes, at his death a life of the greatest usefulness had but just begun. But who shall say this life is short and that one long; "for qualities of mind and heart," as Emerson says "are not written in water that quickly passes but are enameled in fire and crowned with immortality."

Pages 18-53 of this volume contain the discussion of the Constitution and By-Laws proposed by the American Medical Association. The Constitution and By-Laws as finally adopted by this Society, are placed here in full, but they cannot become in force until the repeal of our present Charter by the General Assembly of the State.

CONSTITUTION.

ARTICLE I.—NAME OF THE ASSOCIATION.

The name and title of this Organization shall be the Connecticut Medical Association.

ARTICLE II.—PURPOSES OF THE ASSOCIATION.

The purposes of this Association shall be to federate and bring into one compact organization the entire medical profession of the State of Connecticut, and to unite with similar societies of other States to form the American Medical Association; to extend medical knowledge and advance medical science; to elevate the standard of medical education, and to secure the enactment and enforcement of just medical laws; to promote friendly intercourse among physicians; to guard and foster the material interests of its members and to protect them against imposition; and to enlighten and direct public opinion in regard to the great problems of State medicine, so that the profession shall become more capable and honorable within itself, and more useful to the public, in the prevention and cure of disease, and in prolonging and adding comfort to life.

ARTICLE III.—COMPONENT SOCIETIES.

Component Societies shall consist of those county medical societies which hold charters from this Association.

ARTICLE IV.—COMPOSITION OF THE ASSOCIATION.

Section 1.—This Association shall consist of Members, Delegates, Guests and Honorary Members.

Sec. 2.—Members. The Members of this Association shall be the members of the component county medical societies.

Sec. 3. Delegates. Delegates shall be those members who are elected in accordance with this Constitution and By-Laws to represent their respective component societies in the House of Delegates of this Association.

Sec. 4. Guests. Any distinguished physician not a resident of this State who is a member of his own State Association may become a guest during any Annual Session on invitation of the officers of this Association, and shall be accorded the privilege of participating in all of the scientific work for that Session.

Sec. 5. Honorary Members. Eminent physicians, not residents of this State, may be elected Honorary Members by a major vote of the House of Delegates after nomination of one year, but such shall not exceed three in any one year.

Honorary Members shall have all the privileges accorded by Sec. 4 to Guests.

ARTICLE V.—HOUSE OF DELEGATES.

The House of Delegates shall be the legislative and business body of the Association, and shall consist of (1) Delegates elected by the component county societies, (2) the Councilors, and (3), ex-officio, the President and Secretary of this Association.

ARTICLE VI.—COUNCIL.

The Council shall consist of one Councilor from each county and the President and Secretary, ex-officio.

ARTICLE VII.—SECTIONS AND DISTRICT SOCIETIES.

The House of Delegates may provide for a division of the scientific work of the Association into appropriate

Sections, and for the organization of such Councilor District Societies as will promote the best interests of the profession, such societies to be composed exclusively of members of component county societies.

ARTICLE VIII.—SESSIONS AND MEETINGS.

Section 1. The Association shall hold an Annual Session, during which there shall be held daily General Meetings, which shall be open to all registered members, guests and honorary members.

ARTICLE IX.—OFFICERS.

Section 1. The officers of this Association shall be a President, two Vice-Presidents, a Secretary, a Treasurer, and Eight Councilors.

Sec. 2. The officers, except the Councilors, shall be elected annually. The President shall appoint the first Councilors, to serve for one year, or until their successors are elected. The terms of the elected Councilors shall be for three years, those first elected serving one, two and three years, as may be arranged. All of these officers shall serve until their successors are elected and installed.

Sec. 3. The officers of this Association shall be elected by the House of Delegates on the morning of the last day of the Annual Session, but no Delegate shall be eligible to any office named in the preceding section, except that of Councilor, and no person shall be elected to any such office who has not been a member of the Association for the past two years.

ARTICLE X.—RECIPROCITY OF MEMBERSHIP WITH
OTHER STATE SOCIETIES.

In order to broaden professional fellowship this Association is ready to arrange with other State Medical Associations for an interchange of certificates of membership, so that members moving from one State to another may avoid the formality of re-election.

ARTICLE XI.—FUNDS AND EXPENSES.

Funds shall be raised by an equal per capita assessment on each component society. The amount of the assessment shall be fixed by the House of Delegates, but shall not exceed the sum of \$3.00 per capita per annum, except on a four-fifths vote of the Delegates present. Funds may also be raised by voluntary contributions, from the Association's publications, and in any other manner approved by the House of Delegates. Funds may be appropriated by the House of Delegates to defray the expenses of the Association, for publications, and for such other purposes as will promote the welfare of the profession. All resolutions appropriating funds must be referred to the Finance Committee before action is taken thereon.

ARTICLE XII.—REFERENDUM.

Section 1. A General Meeting of the Association may, by a two-thirds vote of the members present, order a general referendum on any question pending before the House of Delegates, and when so ordered the House of Delegates shall submit such question to the members of the Association, who may vote by mail or in person, and, if the members voting shall comprise a majority of all the members of the Association, a majority of such vote shall determine the question and be binding on the House of Delegates.

Sec. 2. The House of Delegates may, by a two-thirds vote of its members present submit any question before it to a general referendum, as provided in the preceding section, and the result shall be binding on the House of Delegates.

ARTICLE XIII.—THE SEAL.

The Association shall have a common Seal, with power to break, change or renew the same at pleasure.

ARTICLE XIV.—AMENDMENTS.

The House of Delegates may amend any article of this Constitution by a two-thirds vote of the Delegates present at any Annual Session, provided that such amendment shall have been presented in open meeting at the previous annual session, and that it shall have been sent officially to each component society at least two months before the meeting at which final action is to be taken.

BY-LAWS.

CHAPTER I.—MEMBERSHIP.

Section 1. The name of a physician on the properly certified roster of members of a component society, who has paid his annual assessment, shall be prima facie evidence of membership in this Association.

Sec. 2. Any person who is under sentence of suspension or expulsion from a component society, or whose name has been dropped from its roll of members, shall not be entitled to any of the rights or benefits of this Association, nor shall he be permitted to take part in any of its proceedings until he has been relieved of such disability.

Sec. 3. Each member in attendance at the Annual Session shall enter his name on the registration book, indicating the component society of which he is a member.

CHAPTER II.—ANNUAL AND SPECIAL SESSIONS OF THE
ASSOCIATION.

Section 1. The Association shall hold an Annual Session at such time and place as has been fixed at the preceding Annual Session by the House of Delegates.

Sec. 2. Special meetings of either the Association or of the House of Delegates shall be called by the President on petition of ten delegates or fifty members.

CHAPTER III.—GENERAL MEETINGS.

Section 1. All registered members may attend and participate in the proceedings and discussions of the General Meetings and of the Sections. The General Meetings shall be presided over by the President or by one of the Vice Presidents, and before them shall be delivered the address of the President and the orations.

Sec. 2. The General Meeting may recommend to the House of Delegates the appointment of committees or commissions for scientific investigation of special interest and importance to the profession and public.

CHAPTER IV.—HOUSE OF DELEGATES.

Section 1. The House of Delegates shall meet at 2 p. m. on the day before that fixed as the first day of the annual session. It may adjourn from time to time as may be necessary to complete its business, provided, that its hours shall conflict as little as possible with the General Meetings. The order of business shall be arranged as a separate section of the program.

Sec. 2. Each component county society shall be entitled to send to the House of Delegates each year one delegate for every 35 members, and one for each major fraction thereof, but each component society which has made its annual report and paid its assessment as provided in this Constitution and By-Laws, shall be entitled to one delegate.

Sec. 3. Twenty delegates shall constitute a quorum.

Sec. 4. It shall, through its officers, Council and otherwise, give diligent attention to and foster the scientific work and spirit of the Association, and shall constantly study and strive to make each Annual Session a stepping stone to further advancement.

Section 5. It shall consider and advise as to the material interests of the profession, and of the public in those important matters wherein it is dependent upon the profession, and shall use its influence to secure and enforce all proper medical and public-health legislation, and to diffuse popular information in relation thereto.

Section 6. It shall make careful inquiry into the condition of the profession of each county in the State, and shall have authority to adopt such methods as may be deemed most efficient for building up and increasing the interest in such county societies as already exist, and for organizing the profession in counties where societies do not exist. It shall especially and systematically endeavor to promote friendly intercourse among physicians of the same locality, and shall continue these efforts until every physician in every county of the State who can be made reputable has been brought under medical society influence.

Section 7. It shall encourage post-graduate and research work, as well as home study, and shall endeavor to have the results discussed and utilized.

Section 8. It shall elect representatives to the House of Delegates of the American Medical Association in accordance with the Constitution and By-Laws of that body.

Section 9. It shall, upon application, provide and issue charters to county societies organized to conform to the spirit of this Constitution and By-Laws.

Section 10. It shall have authority to appoint committees for special purposes from among members of the

Association who are not members of the House of Delegates. Such committees shall report to the House of Delegates, and may be present and participate in the debate on their reports.

Section 11. It shall approve all memorials and resolutions issued in the name of the Association before the same shall become effective.

CHAPTER V.—ELECTION OF OFFICERS.

Section 1. All elections shall be by ballot, and a majority of the votes cast shall be necessary to elect.

Sec. 2. The election of officers shall be the first order of business of the House of Delegates after the reading of the minutes on the morning of the last day of the General Session.

CHAPTER VI.—DUTIES OF OFFICERS.

Section 1. The President shall preside at all meetings of the Association and of the House of Delegates; shall appoint all committees not otherwise provided for; he shall deliver an annual address at such time as may be arranged, and perform such other duties as custom and parliamentary usage may require. He shall be the real head of the profession of the State during his term of office, and, as far as practicable, shall visit by appointment the various sections of the State and assist the Councilors in building up the county societies, and in making their work more practical and useful.

Sec. 2. The Vice-Presidents shall assist the President in the discharge of his duties. In the event of the President's death, resignation or removal, the Council shall select one of the Vice-Presidents to succeed him.

Sec. 3. The Treasurer shall give bond in the sum of \$1,000, the manner of bonding to be left to the Council. He shall demand and receive all funds due the Association, together with the bequests and donations. He shall pay money out of the Treasury only on a writ-

ten order of the President, countersigned by the Secretary; he shall subject his accounts to such examination as the House of Delegates may order, and he shall annually render an account of his doings and of the state of the funds in his hands.

Sec. 4. The Secretary shall attend the General Meetings of the Association and the meetings of the House of Delegates, and shall keep minutes of their respective proceedings in separate record books. He shall be ex-officio Secretary of the Council. He shall be custodian of all record books and papers belonging to the Association, except such as properly belong to the Treasurer, and shall keep account of and promptly turn over to the Treasurer all funds of the Association which come into his hands. He shall provide for the registration of the members and delegates of the Annual Sessions. He shall, with the co-operation of the secretaries of the component societies, keep a card-index register of all the legal practitioners of the State by counties, noting on each his status in relation to his county society, and, on request, shall transmit a copy of this list to the American Medical Association. He shall aid the Councilors in the organization and improvement of the county societies and in the extension of the power and usefulness of this Association. He shall conduct the official correspondence notifying members of meetings, officers of their election and committees of their appointment and duties. He shall employ such assistants as may be ordered by the House of Delegates, and shall make an annual report to the House of Delegates. He shall supply each component society with the necessary blanks for making their annual reports.

CHAPTER VII.—COUNCIL.

Section 1. The Council shall meet daily during the Session, and at such other times as necessity may require sub-

ject to the call of the chairman or on petition of three Councilors. It shall meet on the last day of the Annual Session of the Association to organize and outline work for the ensuing year. It shall elect a chairman and a clerk who, in the absence of the Secretary of the Association, shall keep a record of its proceedings. It shall, through its chairman, make an annual report to the House of Delegates.

Sec. 2. Each Councilor shall be organizer, peacemaker and censor for his district. He shall visit the counties in his district at least once a year for the purpose of organizing component societies where none exists; for inquiring into the condition of the profession, and for improving and increasing the zeal of the county societies and their members. He shall make an annual report of his work and of the condition of the profession of each county in his district at the Annual Session of the House of Delegates.

Sec. 3. The Council shall be the board of censors of the Association. It shall consider all questions involving the rights and standing of members, whether in relation to other members; to the component societies, or to this Association. All questions of an ethical nature brought before the House of Delegates or the General Meeting shall be referred to the Council without discussion. It shall hear and decide all questions of discipline affecting the conduct of members or component societies on which an appeal is taken from the decision of an individual Councilor, and its decision in all such matters shall be final.

Section 4. The First Councilor District shall be Hartford County; the second, New Haven County; the third, New London and Middlesex Counties; the fourth, Fairfield County; the fifth, Litchfield County; the sixth, Windham and Tolland Counties.

Sec. 5. The Council shall provide for and superintend

the publication and distribution of all proceedings, transactions and memoirs of the Association and shall have authority to appoint an editor and such assistants as it deems necessary. All money received by the Council and its agents, resulting from the discharge of the duties assigned to them, must be paid to the Treasurer of the Association. As the Finance Committee it shall annually audit the accounts of the Treasurer and Secretary and other agents of this Association and present a statement of the same in its annual report to the House of Delegates, which report shall also specify the character and cost of all the publications of the Association during the year, and the amount of all other property belonging to the Association under its control, with such suggestions as it may deem necessary. In the event of a vacancy in the office of the Secretary, or the Treasurer, the Council shall fill the vacancy until the next annual election.

CHAPTER VIII.—COMMITTEES.

Section 1. The standing committees shall be as follows:

A Committee on Scientific Work.

A Committee on Public Policy and Legislation.

A Committee on Arrangement, and such other committees as may be necessary. Such committees shall be elected by the House of Delegates, unless otherwise provided.

Sec. 2. The Committee on Scientific Work shall consist of three members, of which the Secretary shall be one, and shall determine the character and scope of the scientific proceedings of the Association for each session, subject to the instructions of the House of Delegates. Fifteen days previous to each Annual Session it shall prepare and issue a program announcing the order in which papers, discussions and other business shall be presented.

Sec. 3. The Committee on Public Policy and Legisla-

lation shall consist of one member from each component society and the President and Secretary. Under the direction of the House of Delegates it shall represent the Association in securing and enforcing legislation in the interest of the public health and of scientific medicine. It shall keep in touch with professional and public opinion, shall endeavor to shape legislation so as to secure the best results for the whole people and shall strive to organize professional influence so as to promote the general good of the community in local, state and national affairs and elections.

Sec. 4. The Committee of Arrangements shall be appointed by the component society in which the Annual Session is to be held. It shall provide suitable accommodations for the meeting places of the Association and of the House of Delegates, and of their respective committees. Its Chairman shall report an outline of the arrangements to the Secretary for publication in the programme, and shall make additional announcements during the session as occasion may require.

CHAPTER IX.—COUNTY SOCIETIES.

Section 1. All county societies now in affiliation with this Association or those which may hereafter be organized in this State, which have adopted principles of organization not in conflict with this Constitution and By-Laws, shall, on application, receive a charter from and become a component part of this Association.

Sec. 2. Each county society shall judge of the qualification of its own members, but as such societies are the only portals to this Association and to the American Medical Association, every reputable and legally registered physician who does not practice or claim to practice nor lend his support to, any exclusive system of medicine, shall be entitled to membership.

Sec. 3. Any physician who may feel aggrieved by the action of the society of his county in refusing him mem-

bership or in suspending or expelling him, shall have the right to appeal to the Council, and its decision shall be final.

Sec. 4. In hearing appeals the Council may admit oral or written evidence as in its judgment will be best and to most fairly present the facts, but in case of every appeal, both as a Board and as individual Councilors in district and county work, efforts at conciliation and compromise shall precede all such hearings.

Sec. 5. When a member in good standing in a component society moves to another county in this State, his name on request, shall be transferred, without cost, to the roster of the county into whose jurisdiction he moves.

Sec. 6. A physician living on or near a county line may hold his membership in that county most convenient for him to attend, on permission of the society in whose jurisdiction he resides.

Sec. 7. Each component society shall have general direction of the affairs of the profession in its county, and its influence shall be constantly exerted for bettering the scientific, moral and material condition of every physician in the county; and systematic efforts shall be made by each member, and by the society as a whole, to increase the membership until it embraces every qualified physician in the county.

Sec. 8. At some meeting in advance of the Annual Session of this Association, each county society shall elect a delegate or delegates to represent it in the House of Delegates of this Association in the proportion of one delegate to each thirty-five members or fraction thereof, and the Secretary of the society shall send a list of such delegates to the Secretary of this Association, at least twenty days before the Annual Session.

Sec. 9. The Secretary of each component society shall keep a roster of its members and of the non-affiliat-

ed registered physicians of the county, in which shall be shown the full name, address, college and date of graduation, date of registration in this State and such other information as may be deemed necessary. In keeping such roster the Secretary shall note any changes in the personnel of the profession by death, or by removal to or from the county, and in making his annual report he shall be certain to account for every physician who has lived in the county during the year.

Sec. 10. The Secretary of each component society shall forward its assessment to the Treasurer at least ten days before the Annual Session and its roster of non-affiliated physicians of the county to the Secretary of this Association each year twenty days before the Annual Session.

CHAPTER X.—MISCELLANEOUS.

Section 1. No address or paper before this Association, except those of the President and orators, shall occupy more than twenty minutes in its delivery; and no member shall speak longer than five minutes, nor more than once on any subject except by unanimous consent.

Sec. 2. All papers read before the Association or any of the Sections shall become its property. Each paper shall be deposited with the Secretary when read. No paper shall be read before this Association which has been previously published or read before any other organization.

Sec. 3. The deliberations of this Association shall be governed by parliamentary usage as contained in Roberts' Rules of Order, when not in conflict with this Constitution and By-Laws.

Sec. 4. The Principles of Medical Ethics of the American Medical Association shall govern the conduct of members in their relations to each other and to the public.

CHAPTER XI.—AMENDMENTS,

These By-Laws may be amended at any Annual Ses-

sion by a majority vote of all the delegates present at that session, after the amendment has been laid on the table for one day.

CORRECTION.

The first lines of the second paragraph of page 167 should read :

In the past ten years there have been twenty-five deaths from small-pox in Connecticut, and five hundred and forty-eight cases reported ; this gives a death rate of four and a half per cent. (4.5), which is much lower than that of any other contagious disease we have considered.

C. J. FOOTE,
Chairman Committee Matters Professional
Interest in the State.

MEMBERS OF THE SOCIETY.

HONORARY MEMBERS.

ADRIAN THEO. WOODWARD,	Brandon, Vt.
WILLIAM McCOLLOM,	Brooklyn, N. Y.
AGRIPPA NELSON BELL,	Brooklyn, N. Y.
JOHN SHAW BILLINGS, U. S. A.,	New York City.
THOMAS ADDIS EMMETT,	New York City.
WILLIAM HENRY WELCH,	Baltimore, Md.
ROBERT FULTON WEIR,	New York City.
SIR JOSEPH LISTER,	London, Eng.
EDWARD G. JANEWAY,	New York City.
HON. CHARLES E. GROSS,	Hartford.
DAVID WEBSTER,	New York City.
SIR JAMES GRANT,	Ottawa, Can.
HENRY O. MARCY,	Boston, Mass.
T. MITCHELL PRUDDEN,	New York City.
WILLIAM W. KEEN,	Philadelphia, Pa.
JAMES W. McLANE,	New York City.
FREDERICK HOLME WIGGIN,	New York City.
SENECA D. POWELL,	New York City.
J. W. S. GOULEY,	New York City.
REYNOLD WEBB WILCOX,	New York City.
WILLIAM OSLER,	Baltimore, Md. .

ACTIVE MEMBERS.

The names of those who have been Presidents are in capitals.

HARTFORD COUNTY.

GEORGE R. SHEPHERD, M.D., Hartford, President.

THEODORE G. WRIGHT, M.D., Plainville, Vice President.

WILLIAM M. WEAVER, M.D., Hartford, Clerk.

County Reporter—WILLIAM R. MILLER, M.D.

Censors—JOSEPH A. KILBOURN, M.D., ROBERT M. CLARK, M.D.,

OLIVER C. SMITH, M.D.

Annual Meeting Third Wednesday in April. Semi-Annual Meeting
Third Wednesday in October.

HARTFORD:

GURDON W. RUSSELL, No. 207 Farmington Avenue.

HENRY P. STEARNS, No. 190 Retreat Avenue.

Horace S. Fuller, No. 96 Trumbull Street.

John O'Flaherty, No. 406 Main Street.

Nathan Mayer, No. 904 Main Street.

David Crary, No. 926 Main Street.

John B. Lewis, No. 56 Prospect Street.

Daniel T. Bromley, No. 121 Pearl Street.

Gustavus P. Davis, No. 56 Prospect Street.

Charles E. Froelich, No. 103 Pratt Street.

Harmon G. Howe, No. 137 High Street.

William T. Bacon, No. 75 Pratt Street.

William W. Knight, No. 96 Trumbull Street.

Thomas D. Crothers, No. 50 Fairfield Avenue.

George L. Parmele, No. 65 Pratt Street.

Ellen H. Gladwin, No. 705 Asylum Avenue.

SAMUEL B. ST. JOHN, No. 68 Pratt Street.

George R. Shepherd, No. 32 Farmington Avenue.

Frederick S. Crossfield, No. 75 Pratt Street.

Marcus M. Johnson, No. 92 Pearl Street.

William D. Morgan, No. 49 Pearl Street.

John F. Axtelle, No. 635 Main Street.

George K. Welch, No. 103 Pratt Street.

Phineas H. Ingalls, No. 112 High Street.

Edward K. Root, No. 49 Pearl Street.

Luther A. Davison, No. 11 Pratt Street.

John Howard, No. 119 Trumbull Street.

Charles D. Alton, No. 86 Farmington Avenue.

Oliver C. Smith, No. 44 High Street.

Joseph E. Root, No. 67 Pearl Street.

William Porter, Jr., No. 179 Allyn Street.

Frederick T. Simpson, No. 122 High Street.

George R. Miller, No. 51 Church Street.

Charles C. Beach, No. 53 Trumbull Street.

Gideon C. Segur, No. 67 Farmington Avenue.

George C. Balley, No. 65 Church Street.

Alva E. Abrams, No. 78 High Street.

Charles E. Taft, No. 98 High Street.

Thomas F. Kane, No. 517 Main Street.
 Arthur J. Wolf, No. 1 Spring Street.
 Ansel G. Cook, No. 179 Allyn Street.
 Edwin A. Down, No. 2 State Street.
 Daniel F. Sullivan, No. 64 Church Street.
 Joseph H. Cahill, No. 1145 Main Street.
 Everett J. McKnight, No. 110 High Street.
 Benjamin S. Barrows, No. 78 High Street.
 Michael A. Bailey, No. 434 Main Street.
 George N. Bell, No. 44 High Street.
 Frank L. Waite, No. 68 Pratt Street.
 Oliver K. Isham, No. 211 High Street.
 Franklin L. Lawton, No. 286 Main Street.
 John H. Rose, No. 76 Pratt Street.
 John B. Waters, No. 108 Trumbull Street.
 Joseph B. Hall, No. 76 Pratt Street.
 Edward O. Elmer, No. 813 Park Street.
 Janet M. Weir, No. 48 May Street.
 John F. Dowling, No. 1244 Main Street.
 Philip D. Bunce, No. 98 High Street.
 Homer L. Law, No. 100 Washington Street.
 Wilton E. Dickerman, No. 53 Trumbull Street.
 John B. Boucher, No. 25 Charter Oak Avenue.
 Levi B. Cochran, No. 43 Farmington Avenue.
 James H. Naylor, No. 207 Main Street.
 Charles P. Botsford, No. 1238 Main Street.
 James H. Standish, No. 378 Windsor Avenue.
 Michael H. Gill, No. 397 Capitol Avenue.
 John B. McCook, No. 390 Main Street.
 John W. Felty, No. 340 Windsor Avenue.
 George E. Sleeper, No. 1333 Main Street.
 Frank B. Look, No. 104 Church Street.
 Frank S. Snow, Allyn House.
 Howard F. Smith, No. 926 Main Street.
 Thomas W. Chester, No. 110 High Street.
 Joseph A. Kilbourn, No. 771 Park Street.
 Philip P. Carlon, No. 387 Capitol Avenue.
 William G. Craig, No. 75 Pratt Street.
 Thomas B. Enders, No. 8 Highland Street.
 Charles A. Goodrich, No. 5 Haynes Street.
 Alfred M. Rowley, No. 280 Main Street.
 Irving DeL. Blanchard, No. 241 Main Street.
 Emil G. Reinert, No. 30 Lewis Street.
 Arthur D. Hayes, No. 42 High Street.
 Herman A. Tyler, Jr., No. 641 Main Street.
 Frederick L. McKee, No. 153 Ashley Street.
 Edward R. Lampson, No. 53 Trumbull Street.
 *William M. Weaver, No. 115 Edwards Street.
 E. Terry Smith, No. 76 Pratt Street.
 William H. Fitzgerald, No. 904 Main Street.
 Emma J. Thompson, No. 106 Trumbull Street.
 Patrick J. Ryan, No. 318 Park Street.
 Walter R. Steiner, No. 4 Trinity Street.
 Ellen P. O'Flaherty, No. 406 Main Street.
 Thomas A. Mulcahey, No. 272 Park Street.
 Marian W. Williams, No. 772 Asylum Street.
 Allen H. Williams, No. 772 Asylum Street.
 C. Brewster Brainard, No. 2 Garden Street.
 Eckley R. Storrs, No. 39 Pearl Street.
 Ernest A. Wells, No. 904 Main Street.
 William H. Van Strander, No. 73 Church Street.
 James W. Conklin, No. 51 Pratt Street.
 John L. North, No. 125 Trumbull Street.

*Exempted from taxation.

BERLIN :

Robert E. Ensign.
Charles A. Gillin.

East Berlin:

George W. Lawrence.

BRISTOL :

John J. Wilson.
William W. Horton.
Arthur S. Brackett.
William M. Curtis.

CANTON—Collinsville:

George F. Lewis.
William H. Crowley.
Paul Plummer.

EAST HARTFORD :

Thomas S. O'Connell.
Walter G. Murphy.
William B. Scranton.

Burnside:

Franklin H. Mayberry.

EAST WINDSOR—Broad Brook:

Howard O. Allen.
Orran A. Moser.

Warehouse Point:

Michael J. Kelly.
George E. Porter.

ENFIELD—Thompsonville:

Edward F. Parsons.
George T. Finch.
Henry G. Varno.
Thomas F. Reardon.

Hazardville:

Simon W. Houghton.

GRANBY:

Rollin B. Chatfield.

FARMINGTON:

Franklin Wheeler.
Charles Carrington.

GLASTONBURY :

Charles G. Rankin.
William S. Kingsbury.

South Glastonbury:

Henry M. Rising.
Harry B. Rising.

MANCHESTER :

Francis H. Whiton.
Calvin Weldner.

East Manchester :

Thomas G. Sloan.

South Manchester:

William R. Tinker.
Thomas H. Weldon.
William S. Gillam.

NEW BRITAIN :

*George Clary.
Edwin B. Lyon.
Jay S. Stone.
Erastus P. Swasey.
Michael J. Coholan.
George J. Holmes.
Lawrence M. Cremin.
Wilbur P. Bunnell.
Samuel W. Irving.
Robert M. Clark.
Hermann Strosser.
Arvid Anderson.
Kenneth E. Kellogg.
Edward L. Whittemore.
Thomas E. Reeks.
William W. Brackett.
Louis D. Henn.

PLAINVILLE :

John N. Bull.
Theodore G. Wright.

SIMSBURY—Tariffville :

Charles M. Wooster.

SOUTHINGTON :

Willard G. Steadman.
William R. Miller.
William H. Cushing.

SOUTH WINDSOR :

Mary S. Tudor.
Henry A. Deane.

SUFFIELD :

Jarvis K. Mason.
Matthew T. Newton.
Philo W. Street.

West Suffield:

William E. Caldwell.

WEST HARTFORD :

Charles O. Purinton.

WETHERSFIELD :

Edward G. Fox.
Arthur W. Howard.

WINDSOR :

*Samuel A. Willson.
Newton S. Bell.
Leander Z. Skinner.
Howard F. King.

WINDSOR LOCKS:

Joseph A. Coogan.
William J. Coyle.
Myron P. Robinson.

*Exempted from taxation.

ACTIVE MEMBERS.

NEW HAVEN COUNTY.

SAMUEL D. OTIS, M.D., Meriden, President.

AUGUSTIN A. CRANE M.D., Waterbury, Vice President.

WILLIAM S. BARNES, M.D., New Haven, Clerk.

County Reporter—ALFRED G. NADLER, M.D., New Haven.

Censors—F. H. WHITTEMORE, M.D., A. A. CRANE, M.D.,
M. C. O'CONNER, M.D.

Annual Meeting, third Thursday in April; semi-annual, third Thursday in October.

NEW HAVEN:

S. G. Hubbard, No. 23 College Street.
C. A. LINDSLEY, No. 15 Elm Street.
John Nicoll, No. 96 Broadway.
T. H. Bishop, No. 215 Church Street.
FRANCIS BACON, No. 32 High Street.
A. E. Winchell, No. 60 Pearl Street.
Robert S. Ives, No. 339 Temple Street.
Evelyn L. Blissell, No. 308 Crown Street.
Arthur Ruickoldt, No. 71 Olive Street.
Walter Judson, No. 1145 Chapel Street.
Frederick Bellona, No. 209 Orange Street.
S. D. Gilbert, No. 27 Wall Street.
J. P. C. Foster, No. 109 College Street.
W. H. Carmalt, No. 87 Elm Street.
T. H. Russell, No. 137 Elm Street.
F. H. Whittemore, No. 13 Elm Street.
C. P. Lindsley, No. 37 Elm Street.
H. Fleischner, No. 928 Grand Avenue.
M. Mailhouse, No. 151 Meadow Street.
M. C. O'Connor, No. 882 State Street.
Charles E. Park, No. 123 Olive Street.
F. E. Beckwith, No. 139 Church street.
Gustavus Elliot, No. 209 Church Street.
J. E. Stetson, No. 106 High Street.
J. F. Luby, No. 667 Grand Avenue.
William W. Hawkes, No. 35 High Street.
Frank H. Wheeler, No. 221 Crown Street.
Herbert E. Smith, Medical College.
Benjamin L. Lambert, No. 578 Howard Avenue.
F. W. Wright, No. 43 Pearl Street.
Edward K. Roberts, No. 244 Grand Avenue.
Oliver T. Osborne, No. 252 York Street.
Lucy C. Peckham, No. 141 Green Street.
William G. Daggett, No. 129 Church Street.
Louis S. DeForest, No. 335 Orange Street.
Henry L. Swain, No. 232 York Street.
Mary B. Moody, Sherland Avenue, cor. E. Grand Avenue.
G. F. Converse, No. 1 Whalley Avenue.
J. H. Townsend, No. 39 College Street.
T. M. Cahill, No. 60 Edwards Street.
C. J. Foote, No. 26 Elm Street.
Marvin Smith, No. 73 Pearl Street.
S. J. Maher, No. 213 Orange Street.
Jay W. Seaver, No. 25 Lynwood Street.
Louis B. Bishop, No. 356 Orange Street.
H. W. Ring, No. 187 Church Street.
W. C. Welch, No. 44 College Street.
A. O. Baribault, No. 528 Chapel Street.

ACTIVE MEMBERS.

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Rollin McNeill, No. 149 Bradley Street.
 Edward M. McCabe, No. 224 Orange Street.
 James M. Reilly, No. 337 Cedar Street.
 Clarence E. Skinner, No. 67 Grove Street.
 N. R. Hotchkiss, No. 219 York Street.
 Benjamin A. Cheney, No. 40 Elm Street.
 Charles A. Tuttle, No. 196 York Street.
 Harry B. Ferris, No. 118 York Street.
 Edmund S. Thomson, No. 352 Grand Avenue.
 Henry F. Klenke, No. 730 Grand Avenue.
 Leonard W. Bacon, Jr., No. 294 Elm Street.
 Paul S. Robinson, No. 164 Grand Avenue.
 Arthur N. Alling, No. 199 York Street.
 R. A. McDonnell, No. 1142 Chapel Street.
 E. P. Pitman, No. 52 Sylvan Avenue.
 James A. Moore, No. 223 Grand Avenue.
 Isaac N. Porter, No. 198 Dixwell Avenue.
 Ernest H. Arnold, No. 46 York Square.
 Robert E. Peck, No. 56 Howe Street.
 Daniel A. Jones, No. 746 Chapel Street.
 William C. Wurttemberg, No. 42 Elm Street.
 Chauncey S. Lamb, No. 776 Howard Avenue.
 Frederick N. Sperry, No. 76 Wooster Street.
 William F. Verdi, No. 172 St. John Street.
 Charles J. Bartlett, Medical College.
 Morris D. Slattery, No. 566 Howard Avenue.
 Ward H. Sanford, No. 63 Edwards Street.
 William M. Kenna, No. 145 Olive Street.
 Leonard C. Sanford, No. 216 Crown Street.
 Willis H. Crowe, No. 106 Whalley Avenue.
 Archibald McNeill, No. 51 Livingstone Street.
 Charles H. Robbins, No. 326 Grand Avenue.
 Louis M. Gompertz, No. 239 York Street.
 Alfred G. Nadler, No. 122 Olive Street.
 T. E. Beard, Jr., No. 163 Wooster Street.
 William Sprenger, No. 366 George Street.
 Joseph B. Monahan, No. 228 Congress Avenue.
 Frederick C. Bishop, No. 1223 Chapel Street.
 James H. J. Flynn, No. 840 Howard Avenue.
 Frank A. Kirby, No. 235 Dixwell Avenue.
 William J. Sheehan, No. 619 Howard Avenue.
 John F. Sullivan, No. 205 Blatchley Avenue.
 John S. Ely, No. 51 Trumbull Street.
 Edward F. McIntosh, No. 192 York Street.
 Nicola Mariani, No. 175 Chestnut Street.
 Samuel M. Hammond, No. 106 College Street.
 George I. Hemingway, No. 88 Broadway.
 Bernard E. Henrahan, No. 603 Dixwell Avenue.
 James S. Maher, No. 215 Orange Street.
 Percy D. Littlejohn, No. 504 George Street.
 A. W. Marsh, No. 1012 Whalley Avenue.
 William N. Winne, No. 58 Harrison Street.
 *William S. Barnes, No. 526 Howard Avenue.
 Irwin Granniss, No. 64 Edgewood Avenue.
 Clarence L. Kilbourn, No. 202 Blatchley Avenue.
 Theodore D. Pallman, No. 362 Whalley Avenue.
 Gilbert T. McMaster, No. 6 High Street.
 Henry H. Smith, No. 43 Elm Street.
 Julia E. Teele, No. 153 Franklin Street.
 Harry L. Welch, No. 44 College Street.
 Willard F. Allen, No. 108 Dixwell Avenue.
 Otto G. Ramsay, No. 251 Church Street.
 Thomas J. Bergin, No. 565 Howard Avenue.
 Francis P. Heery, No. 158 Olive Street.

*Exempted from taxation.

- Thomas V. Hynes, No. 27 College Street.
 Harry M. Steele, No. 226 Church Street.
 Willis E. Hartshorn, No. 1133 Chapel Street.
 Richard F. Rand, No. 246 Church Street.
 George M. Burroughs, Cor. State and Trumbull Streets.
 Edward S. Moulton, No. 38 Elm Street.
- ANSONIA:**
 Louis E. Cooper.
 Louis H. Wilmot.
 Paul Norwood.
- BRANFORD:**
 C. W. Gaylord.
 A. J. Tenny.
- Stony Creek:**
 George H. Townsend.
- DERBY:**
 F. N. Loomis.
 Elmer T. Sharpe.
 Edward A. Halre.
 Royal W. Pinney.
 Paul B. Kennedy.
- EAST HAVEN:**
 Charles W. Holbrook.
- GUILFORD:**
 George H. Beebe.
- HAMDEN—Mt. Carmel:**
 George H. Joslin.
- MADISON:**
 *D. M. Webb.
 John M. Shepard.
- MERIDEN:**
 *Asa H. Churchill.
 C. H. S. Davis.
 *N. Nickerson.
 A. W. Tracy.
 E. T. Bradstreet.
 J. D. Eggleston.
 Edward W. Smith.
 Ava H. Fenn.
 E. W. Pierce.
 S. D. Otis.
 F. P. Griswold.
 E. D. Hall.
 H. W. Delesdernier.
 H. A. Meeks.
 William Galvin.
 J. W. H. La Pointe.
 Joseph A. Cooke.
 Albert E. Von Tobel.
- MILFORD:**
 E. B. Heady.
 E. C. Beach.
 A. L. Tuttle.
- NAUGATUCK:**
 Thomas M. Bull.
 Frederick Spring.
 James W. Robbins.
 William J. Delaney.
 Edwin H. Johnson.
 Frank J. Tuttle.
 John J. Carroll.
- NORTH HAVEN:**
 R. B. Goodyear.
 Edwin H. Bidwell.
- ORANGE—West Haven:**
 J. F. Barnett.
 William V. Wilson.
 Durell Shepard.
 Charles D. Phelps.
 Victor A. Kowalewski.
- OXFORD:**
 *Lewis Barnes.
- SEYMOUR:**
 Frank A. Benedict.
 Elias W. Davis.
- WALLINGFORD:**
 J. D. McGaughey.
 C. H. Atwater.
 William S. Russell.
 William P. Wilson.
 Caroline North.
- WATERBURY:**
 F. E. Castle.
 E. W. McDonald.
 Walter L. Barber.
 C. W. S. Frost.
 CHARLES S. RODMAN.
 J. M. Benedict.
 Thomas L. Axtelle.
 Carl E. Munger.
 Bernard A. O'Hara.
 John F. Hayes.
 Augustin A. Crane.
 Patrick T. O'Connor.
 John D. Freney.
 Charles A. Hamilton.
 George O. Robbins.
 Isaac P. Fiske.
 Charles H. Brown.
 Edward W. Goodenough.
 Myron L. Cooley.
 Frederick G. Graves.
 John R. Poore.
 James L. Moriarty.
 George W. Russell.
 Daniel L. Maloney.
 Thomas J. Kilmartin.
 Ernest D. Chipman.
 Charles A. Monagan.
 Henry G. Anderson.
 Henry E. Hungerford.
 Harry E. Ballard.
 Nelson A. Pomroy.
 Thomas J. Lally.
 Patrick J. Dwyer.
 Louis J. Thibault.
 William A. Goodrich.
 Adelard D. David.
- Waterville:**
 Joseph S. Holroyd.

*Exempted from taxation.

ACTIVE MEMBERS.

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NEW LONDON COUNTY.

GEORGE R. HARRIS, M.D., Norwich, President.

JOHN G. STANTON, M.D., New London, Vice President.

MORTON E. FOX, M.D., Uncasville, Clerk.

County Reporter, C. B. GRAVES, M.D., New London.

Censors—L. S. PADDOCK, M.D., WILLIAM WITTER, M.D.,

F. M. BRAMAN, M.D.

Annual Meeting, first Thursday in April; semi-annual, first Thursday in October.

COLCHESTER:

Raymond R. Gandy.

EAST LYME—Niantic:

Frederick H. Dart.

GRISWOLD—Jewett City:

George H. Jennings.

GROTON:

Edmund P. Douglass.

Frank W. Hewes.

Noank:

William M. Hill.

LYME:

John J. Burnham.

MONTVILLE—Uncasville

*Morton E. Fox.

NEW LONDON:

Abiel W. Nelson.

FRANCIS N. BRAMAN.

John G. Stanton.

Charles B. Graves.

Hiram B. Thomson.

Harold H. Heyer.

Carlisle F. Ferrin.

Thomas W. Rogers.

J. Clifton Taylor.

Griswold Bragaw.

Patrick J. Cassidy.

Harry M. Lee.

Emanuel A. Henkle.

Edward C. Chipman.

NORWICH

Daniel Sullivan.

Lewis S. Paddock.

William Witter.

William S. C. Perkins.

Patrick Cassidy.

LEONARD B. ALMY.

Anthony Peck.

Julian LaPierre.

Edward P. Brewer.

Newton P. Smith.

Witter K. Tingley.

William T. Browne.

George R. Harris.

Rush W. Kimball.

James J. Donahue.

Harvey E. Higgins.

Charles H. Perkins.

Patrick H. Harriman.

Dennis J. Shahan.

John H. Evans.

Mary C. Cassidy.

Taftville:

George Thompson.

Alphonse Fontaine.

Yantic:

Herbert H. Howe.

STONINGTON:

Charles E. Brayton.

Norman L. Drake.

George D. Stanton.

Mystic:

Frank A. Coates.

Charles V. Butler.

Old Mystic:

*Albert T. Chapman.

William H. Gray.

VOLUNTOWN:

Warren R. Davis.

WATERFORD:

George M. Minor.

FAIRFIELD COUNTY.

FREDERIC SCHAVOIR M.D., Stamford, President.

WILLIAM J. TRACY M.D., Norwalk, Vice President.

HERBERT E. SMYTH, M.D., Bridgeport, Clerk.

EDWARDS M. SMITH, Bridgeport, Secretary.

County Reporter.—WILLIAM F. GORDON, M.D., Danbury.

Censors—F. P. CLARK, M.D. N. E. WORDIN, M.D.,

W. B. COGSWELL, M.D.

Annual Meeting, second Tuesday in April, at Bridgeport; semi-annual in October.

BRIDGEPORT:

Andrew J. Smith, No. 191 Barnum Avenue.

*Exempted from taxation.

GEORGE L. PORTER, No. 372 State Street.
 Robert Lauder, No. 310 Fairfield Avenue.
 Curtis H. Bill, No. 411 State Street.
 N. E. Wordin, No. 274 Fairfield Avenue.
 F. M. Wilson, Nos. 834-836 Myrtle Avenue.
 F. B. Downs, No. 906 Lafayette Street.
 J. W. Wright, Nos. 808-810-812 Myrtle Avenue.
 *A. W. Lyons, 316 Colorado Avenue.
 *A. A. Holmes, No. 991 Broad Street.
 Charles C. Godfrey, No. 340 State Street.
 S. M. Garlick, No. 474 State Street.
 Henry Blodget, No. 477 State Street.
 J. C. Lynch, No. 408 State Street.
 C. C. Hoyt, No. 1239 State Street.
 G. W. Osborn, No. 888 Broad Street.
 J. R. Topping, No. 349 Noble Avenue.
 B. W. White, No. 390 State Street.
 Jacob May, No. 124 Courtland Street.
 F. C. Graves, No. 561 State Street.
 G. B. Cowell, No. 502 East Washington Avenue.
 George E. Ober, No. 355 East Main Street.
 D. C. DeWolfe, No. 516 Fairfield Avenue.
 Henry S. Miles, No. 417 State Street.
 Charles L. Banks, No. 306 West Avenue.
 Fessenden L. Day, No. 477 State Street.
 Edward Fitzgerald, No. 526 East Washington Avenue.
 George S. Ford, No. 527 State Street.
 Frank M. Tukey, No. 429 State Street.
 William W. Gray, No. 346 West Avenue.
 James D. Gold, No. 866 Lafayette Street.
 Reuben A. Lockhart, No. 760 Washington Avenue.
 Harriet A. Thompson, No. 695 Warren Street.
 Frederick J. Adams, No. 327 Fairfield Avenue.
 W. J. A. O'Hara, No. 361 Barnum Avenue.
 David M. Trecartin, No. 860 Park Avenue.
 Harry W. Fleck, No. 421 State Street.
 Thomas L. Ellis, No. 332 West Avenue.
 Charles R. Townsend, No. 346 State Street.
 *Herbert E. Smyth, No. 27 Courtland Street.
 Harry R. Bennett, No. 947 State Street.
 J. Murray Johnson, 335 State Street.
 Elmer F. Blank, No. 387 Noble Avenue.
 George M. DeLisser, No. 608 Noble Avenue.
 Irving L. Nettleton, No. 335 Noble Avenue.
 Richard W. Ivers, No. 313 State Street.
 Edwards M. Smith, 340 State Street.
 Frank L. Smith, No. 2178 Main Street.
 David B. Wason, No. 311 State Street.
 Thomas F. Stanton, No. 374 State Street.
 Edward Dorland Smith, No. 824 Myrtle Avenue.
 Frank W. Stevens, No. 404 State Street.
 George Howell Warner, No. 429 State Street.
 Daniel Michael Driscoll, No. 467 State Street.
 Charles E. Blackman, No. 1119 Stratford Avenue.
 David H. Monahan, No. 16 North Washington Avenue.
 George F. Sheedy, No. 408 State Street.

BETHEL:

A. E. Barber.
 George DeWitt Wight.
 Homer F. Moore.
 Charles R. Hart.

BROOKFIELD:

Junius F. Smith.

*Exempted from taxation.

DANBURY:

F. P. Clark.
 E. A. Stratton.
 W. S. Watson.
 D. Chester Brown.
 H. F. Brownlee.
 Nathaniel Selleck.

George E. Lemmer. *Charles F. Craig, U. S. A. John A. Wade. William F. Gordon. W. H. Kiernan. William T. Bronson.	East Norwalk: Frederick B. Baker.
DARIEN: George H. Noxon.	REDDING: Ernest H. Smith.
Noroton: M. W. Robinson.	RIDGEFIELD: Russell W. Lowe. Howard P. Mansfield.
FAIRFIELD: W. H. Donaldson.	STAMFORD: A. M. Hurlbut. Samuel Pierson. A. N. Phillips. P. P. Van Vleet. F. Schavoir. Wm. A. R. Treadway. F. J. Rogers. Rosabelle G. Phillip. James A. Meek. George Sherrill. Watson E. Rice. Frank M. Tiffany. Daniel A. Hanrahan. Myre J. Brooks. Leonard W. Munson. George R. Hertzberg. John J. Cloonan. Dean Foster.
Greens Farms: David W. McFarland.	STBRATFORD: W. B. Cogswell. G. F. Lewis.
Southport: Joseph L. Hetzel. Robert E. Perdue.	WESTON—Leon's Plains: F. Gorham.
GREENWICH: Frank Terry Brooks. Fritz C. Hyde. William L. Griswold.	WESTPORT: George B. Bouton. F. Powers. Loren T. Day. F. D. Ruland. *L. H. Wheeler, U. S. A.
HUNTINGTON—Shelton: GOULD A. SHELTON, William S. Randall. Francis I. Nettleton.	WILTON: A. B. Gorham.
MONROE—Stepney: SETH HILL.	South Wilton: Edward Everett Smith.
NEW CANAAN: Clarence H. Scoville. Myre J. Brooks.	
NORWALK: James G. Gregory. R. L. Higgins. S. H. Huntington. William J. Tracey. Arthur R. Turner.	
South Norwalk: A. N. Clark. C. G. Bohannon. Lauren M. Allen. Henry C. Sherer. Jean Dumortier. Wright B. Bean.	

WINDHAM COUNTY.

AMOS AVERY, M.D., Hampton, President.
 CHARLES C. GILDER-LEENE, East Woodstock, Vice President.
 JAMES L. GARDNER, M.D., Central Village, Clerk.
County Reporter—FRANK H. COOPS, M.D., Danielson.
Censors—THEODORE R. PARKER, M.D., FREDERICK A. MORRELL, M.D.,
 WILLIAM H. JUDSON, M.D.

BROOKLYN—Waregan:

*A. H. Tanner.

*Exempted from taxation.

CHAPLIN:

Charles M. Knight.

Orrin R. Witter.

DANIELSON:	F. A. Morrell.
RIENZI ROBINSON.	Omar LaRue.
W. H. Judson.	Lewis O. Morasse.
C. J. Le Clair.	Warren W. Foster.
Frank H. Coops.	Henry R. Lowe.
James R. Shannon.	THOMPSON:
HAMPTON:	*LOWELL HOLBROOK.
Amos Avery.	Robert C. Paine.
KILLINGLY:	North Grovenor Dale:
Ashael E. Darling.	J. F. McIntosh.
Henry L. Hammond.	WINDHAM:
East Killingly:	F. E. Guild.
Charles E. Hill.	WILLIMANTIC:
MOOSUP:	Frederick Rogers.
Charles N. Allen.	T. MORTON HILLS.
W. W. Adams.	C. J. Fox.
Frederick E. Rainville.	T. R. Parker.
Central Village.	John Weldon.
*James L. Gardner.	R. C. White.
PLAINFIELD:	George W. May.
Arthur A. Chase.	Laura H. Hills.
POMFRET:	Joseph A. Girouard.
S. B. Overlock.	WOODSTOCK—East Woodstock:
PUTNAM:	Charles C. Gildersleeve.
John B. Kent.	

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LITCHFIELD COUNTY.

GEORGE H. KNIGHT, M.D., Lakeville, President.

ALBERT E. COBB, M.D., Falls Village, Vice President.

IRVING L. HAMANT, M.D., Norfolk, Clerk.

County Reporter—ELIAS PRATT, M.D., Torrington.*Censors*—J. C. KENDALL, M.D., I. L. HAMANT, M.D.

N. S. WADHAMS, M.D.

Annual Meeting, fourth Tuesday in April; semi-annual, second Tuesday in October.

BETHLEHEM:	Charles N. Warner.
Etta May Hadley-Judd.	Charles I. Page.
CANAAN—Falls Village:	NEW HARTFORD:
Albert E. Cobb.	Josiah Swett.
CORNWALL:	NEW MILFORD:
Joseph Robinson.	George E. Staub.
Cornwall Bridge:	NORFOLK:
Charles A. Ryder.	John C. Kendall.
West Cornwall:	I. L. Hamant.
Ernest K. Kelsey.	Lucius D. Bulkley.
GOSHEN:	Frederick S. Dennis.
J. H. North.	NORTH CANAAN—Canaan:
Noah S. Wadhams.	Charles W. Camp.
KENT:	Frank H. Lee.
W. M. Barnum.	John G. Adam.
LITCHFIELD:	PLYMOUTH—Terryville:
J. T. Sedgwick.	W. W. Wellington.
John L. Buel.	
W. S. MacLaren.	

*Exempted from taxation.

SALISBURY :	William J. Hogan.
Phillip H. Sellow.	Timothy M. Ryan.
Lakeville:	
William Bissell.	
George H. Knight.	WASHINGTON :
William B. Bissell.	*ORLANDO BROWN.
	William J. Ford.
SHARON :	
Clarence W. Bassett.	WATERTOWN :
THOMASTON :	Ernest K. Loveland.
George D. Ferguson.	
T. G. O'Connell.	WINCHESTER—Winsted :
Robert Hazen.	Edward L. Pratt.
TORRINGTON :	William S. Hulbert.
William L. Platt.	Salmon J. Howd.
Thatcher S. Hanchett.	David D. Reidy.
Elias Pratt.	
J. W. Johnson.	West Winsted:
Jerome S. Bissell.	Edward H. Welch.
James D. Hayes.	William S. Richards.
Abram J. Barker.	
Charles H. Carlin.	WOODBURY—Hotchkissville :
*Sanford H. Wadhams.	Egbert L. Smith.
H. D. Moore.	

MIDDLESEX COUNTY.

CHARLES E. STANLEY, M.D., Middletown, President.

FREDERICK S. SMITH, M.D., Chester, Vice President.

JOHN E. LOVELAND, M.D., Middletown, Clerk.

County Reporter—JOHN H. MOUNTAIN, M.D., Middletown.*Censors*—S. W. TURNER, M.D., GEORGE W. BURKE, M.D.,

M. C. HAZEN, M.D.

Annual Meeting, second Thursday in April; semi-annual, second Thursday in October.

CHATHAM—Middle Haddam :	Frederick Barton Bradeen
George N. Lawson.	Frederick Stanley Cowles
East Hampton:	
Albert Field.	HADDAM :
	Miner C. Hazen.
CHESTER :	
*Sylvester W. Turner.	KILLINGWORTH:
Fred. Sumner Smith.	Edward P. Nichols.
CLINTON :	
Herbert S. Reynolds.	MIDDLETOWN :
David Austin Fox.	*George W. Burke.
	FRANCIS D. EDGERTON.
	Wm. E. Fisher.
CROMWELL :	Charles E. Stanley.
Frank K. Hallock.	Henry S. Noble.
Charles E. Bush.	Michael D. Murphy.
Clara M. DeHart.	John E. Bailey.
	Arthur J. Campbell.
DURHAM :	Arthur B. Coleburn.
Earl Mathewson.	J. Francis Calef.
EAST HADDAM :	John E. Loveland.
M. W. Plumstead.	Kate C. Mead.
ESSEX :	Lewis Maitland.
	Daniel A. Nolan.
	Allen Ross Diefendorf.

*Exempted from taxation.

John H. Mountain. Charles B. Young. Jessie W. Fisher. James T. Mitchell. George Streitt. James Henry Kinningman. Thomas Patrick Walsh. Sarah Edith Ives. OLD SAYBROOK : JOHN H. GRANNISS. William D. Spencer. Callista V. Luther.	PORTLAND : Cushman A. Sears. Frank E. Potter. James Murphy. SAYBROOK—Deep River : *Edwin Bidwell. Howard T. French. Arthur Pratt. Westbrook: Thomas B. Bloomfield.
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TOLLAND COUNTY.

WILLIAM C. HAVEN, M.D., Coventry, President.
ERNEST O. WINSHIP, M.D., Rockville, Vice President.
ERNEST O. WINSHIP, Rockville, Clerk.
County Reporter—**C. B. NEWTON, M.D.,** Stafford Springs
Censors—**WILLIAM C. HAVEN, M.D.,** **A. R. GOODRICH, M.D.,**
E. O. WINSHIP, M.D.

Annual Meeting, third Tuesday in April; semi-annual, third Tuesday
in October.

BOLTON : *Charles F. Sumner. COVENTRY : William C. Haven. South Coventry: W. L. Higgins. Louis I. Mason. ELLINGTON : E. T. Davis. MANSFIELD—Mansfield Depot : F. E. Johnson. ROCKVILLE : Frederick Gilnack. T. F. Rockwell.	E. P. Flint. T. F. O'Laughlin. *Ernest O. Winship. Dean C. Bangs. Frederick W. Walsh. SIMES : Alonzo L. Hurd. STAFFORD—Stafford Springs : C. B. NEWTON. F. L. Smith. James Stretch. VERNON : *A. R. GOODRICH.
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*Exempted from taxation.

ALPHABETICAL LIST

OF THE

MEMBERS OF THE CONNECTICUT MEDICAL SOCIETY,

With Date and Place of Graduation, and Post-Office Address.

In preparing this list the Secretary has followed the list in the Proceedings of 1892, made with great care and labor by Dr. J. B. Lewis for the Centennial year. It may be relied upon as being correct.

Name.	Medical Graduation.	P. O. Address.
Abrams, Alva Elnathan,	Albany, '81,	Hartford.
Adam, John Geikie,	Trinity, To., 1900,	No.anaan.
Adams, Frederick Joseph,	Univ. N. Y., '95,	Bridgeport.
Adams, William Waldo,	Bellevue, '91,	Moosup.
Allen, Charles Noah,	Univ. Vt., '81,	Moosup.
Allen, Howard Oliver,	Univ. N. Y., '79,	Broad Brook.
Allen, Lauren Melville,	P. & S. N. Y., '80,	So. Norwalk.
Allen, Millard Fillmore,	Med. Chl., Phil., '95,	New Haven.
Ailing, Arthur Nathaniel, B.A.,		
Yale, '86,	P. & S. N. Y., '91,	New Haven.
Almy, Leonard Ballou, B. A.,		
Yale, '73,	Bellevue, '76,	Norwich.
Alton, Charles De Lancey,	Bellevue, '76,	Hartford.
Anderson, Arvid,	Univ. Mich., '93,	New Britain.
Anderson, Henry Gray,	P. & S. N. Y., '89,	Waterbury.
Arnold, Ernest Hermann,	Yale, '94,	New Haven.
Atwater, Caleb Huntington,	P. & S. N. Y., '71,	Wallingford.
Avery, Amos,	L. I. Hosp. Coll., '99,	Hampton.
Axtelle, John Franklin,	L. I. Hosp. Coll., '71,	Hartford.
Axtelle, Thomas Lincoln,	Bellevue, '81,	Waterbury.
Bacon, Francis,	Yale, '53,	New Haven.
Bacon, Leonard Woolsey, Jr.,	Yale, '92,	New Haven.
Bacon, William Turner,		
B.A., Yale, '68, M.A., '71,	Univ. N. Y., '71,	Hartford.
Bailey, George Cornelius,	Univ. N. Y., '86,	Hartford.
Bailey, John Elmore,	P. & S. N. Y., '85,	Middletown.
Bailey, Michael Angelo,	P. & S. Balt., '93,	Hartford.
Ballard, Harry Emory,	Univ. Vt., '93,	Waterbury.
Baker, Frederick Birdseye,	Univ. Md., '83,	E. Norwalk.
Bangs, Dean,	Cleveland Balt. '02,	Rockville.
Banks, Charles Lincoln,	P. & S. N. Y., '91,	Bridgeport.
Barber, Alvin Ellzur,	Berkshire, '54,	Bethel.
Barber, Walter Lewis,	Bellevue, '73,	Waterbury.
Barker, Abram James,	Bellevue, '87,	Torrington.
Baribault, Arthur Octave,	Vict. Med. Col., '89,	New Haven.
Barnes, Lewis, B.A., M.A.,		
Yale, '47,	Buffalo Univ., '50,	Oxford.
Barnes, William Samuel, Ph.B.,		
Yale, '95,	Yale, '97,	New Haven.
Barnett, John Frederick,	Yale, '69,	West Haven.
Barnum, Walter Milo,	P. & S. N. Y., '88,	Kent.

Name.	Medical Graduation.	P. O. Address.
Barrows, Benj. Safford, Ph.B., Yale, '83.	Univ. N. Y., '87.	Hartford.
Bartlett, Charles Joseph, B.A., Yale, '92; M.A., Yale, '94.	Yale, '95.	New Haven.
Bassett, Clarence Wheeler,	Univ. N. Y., '82.	Sharon.
Beach, Charles Coffing,	P. & S., N. Y., '82.	Hartford.
Beach, Edward Charles,	Yale, '88.	Milford.
Bean, Wright Butler,	P. & S., N. Y., '95.	South Norwalk.
Beard, Theodore Edward, Jr., Beckwith, Frank Edwin,	Yale, '97.	New Haven.
M.A., Yale, '81.	P. & S., N. Y., '71.	New Haven.
Beebe, George Hoxie,	Univ. N. Y., '78.	Gulford.
Bell, George Newton,	Yale, '92.	Hartford.
Bell, Newton Stephen,	Univ. Vt., '64.	Windsor.
Belloso, Frederick,	Yale, '72.	New Haven.
Benedict, Frank Allen,	P. & S., N. Y., '87.	Seymour.
Benedict, John Mitchell,	Univ. N. Y., '82.	Waterbury.
Bennett, Harry Raymond,	Univ. Vt., '96.	Bridgeport.
Bergin, Thomas Joseph, A.B., Yale, '96.	Yale, 1890.	New Haven.
Bidwell, Edwin,	Yale, '47.	Deep River.
Bidwell, Edwin Hamilton,	Dartmouth, '94.	North Haven.
Bill, Curtis Harvey,	Univ. N. Y., '59.	Bridgeport.
Bishop, Frederick Courtney, B.A., Yale, '92.	Yale, '95.	New Haven.
Bishop, Louis Bennett, B.A., Yale, '86.	Yale, '88.	New Haven.
Bishop, Timothy Huggins,	Yale, '60.	New Haven.
Bissell, Evelyn Lyman,	Yale, '60.	New Haven.
Bissell, Jerome Samuel,	Yale, '94.	Torrington.
Bissell, William, B.A., Yale, '53.	Yale, '56.	Lakeville.
Bissell, William Bascom, A.B., Yale, '88.	P. & S., N. Y., '92.	Lakeville.
Blackman, Charles Eugene,	L. I. Col., Hosp., '97.	Bridgeport.
Blanchard, Irving DeLoss,	Yale, '97.	Hartford.
Blank, Elmer Francis,	Starling, '97.	Bridgeport.
Blodget, Henry, A.B., Yale, '75.	Bellevue, '81.	Bridgeport.
Bloomfield, Thomas Blanch,	P. & S., N. Y., '76.	Westbrook.
Bohannon, Charles Gordon,	Univ. N. Y., '78.	South Norwalk.
Botsford, Charles Porter,	Yale, '94.	Hartford.
Boucher, John Bernard,	P. & S., Balt., '94.	Hartford.
Bouton, George Beriah,	Y., '56; N. Y. M., '56.	Westport.
Brackett, Arthur Stone,	Jefferson, '95.	Bristol.
Brackett, William Walker,	Jefferson, '96.	New Britain.
Bradeen, Frederick Barton,	Univ. Pa., '99.	Essex.
Bradstreet, Edward Thomas, B.A., Yale, '74.	P. & S., N. Y., '77.	Meriden.
Bragaw, Griswold,	Bellevue, '97.	New London.
Brainerd, Clifford Brewster, Ph. B., Yale, '94.	Yale, '98.	Hartford.
Braman, Francis Nelson,	Bellevue, '66.	New London.
Brayton, Charles Erskine,	P. & S., N. Y., '73.	Stonington.
Brennan, Ambrose Kirk,	Yale, '93.	New Haven.
Brewer, Edward Pliny, Ph.D.,	Dartmouth, '79.	Norwich.
Bromley, Daniel Tyler,	Yale, '67.	Hartford.
Bronson, William Thaddeus,	Univ. N. Y., '93.	Danbury.
Brooks, Frank Terry, B.A., Yale, '90.	P. & S., '93.	Greenwich.
Brooks, Myre Joel,	Yale, '67.	New Canaan.
Brown, Charles Henry,	Univ. N. Y., '93.	Waterbury.
Brown, David Chester,	Yale, '84.	Danbury.
Brown, Orlando,	Yale, '51.	Washington.
Browne, William Tyler, Ph.B., Yale, '78.	Harvard, '82.	Norwich.

Name.	Medical Graduation.	P. O. Address.
Brownlee, Harris Fenton,	P. & S., N. Y., '88,	Danbury.
Buel, John Laidlaw,	P. & S., N. Y., '88,	Litchfield.
Bulkley, Lucius Duncan, M.A.,		
A.B., Yale, '66,	P. & S., N. Y., '69,	Norfolk.
Bull, John Norris,	P. & S., N. Y., '78,	Plainville.
Bull, Thomas Marcus,	P. & S., N. Y., '87,	Naugatuck.
Bunce, Philip Dibble,		
A.B., Yale, '88,	P. & S., N. Y., '91,	Hartford.
Bunnell, Wilbur Pitkin,	Univ. N. Y., '62,	New Britain.
Burke, George Whiting, B.A.,		
'39, M.A., '42, Wesleyan,	Yale, '43,	Middletown.
Burnham, John Lewis,	Yale, '99,	Lyme.
Burroughs, George McClellan,	Balt. Med. Col., '00,	New Haven.
Bush, Charles Ellsworth,	Yale, '94,	Cromwell.
Butler, Charles Voorhes,	Univ. N. Y., '93,	Mystic.
Cahill, Joseph Henry,	Balt. Univ., '92,	Hartford.
Cahill, Thomas Matthew,	Yale, '88,	New Haven.
Caldwell, William Elry,	Balt. Med. Col., '95,	West Suffield.
Calef, Jeremiah Francis, B.A.,		
Wesleyan, '77,	Yale, '80,	Middletown.
Camp, Charles Welford,	Univ. N. Y., '74,	Canaan.
Campbell, Arthur Joseph,	P. & S., Balt., '85,	Middletown.
Carlin, Charles Henry,	Univ. Mich., '96,	Torrington.
Carlson, Philip Patrick,	Univ. N. Y., '90,	Hartford.
Carmalt, William Henry,		
M.A., Yale, '81,	P. & S., N. Y., '61,	New Haven.
Carrington, Charles,	P. & S., N. Y., '60,	Farmington.
Carroll, John James,	Dartmouth, '97,	Naugatuck.
Cassidy, Mary Cecelia,	W. Med. Col., Phil., '93,	Norwich.
Cassidy, Patrick,	Univ. Vt., '65,	Norwich.
Cassidy, Patrick John, B.A.,		
Yale, '94,	Johns Hopkins, '98,	New London.
Castle, Frank Edwin,	Yale, '70,	Waterbury.
Chapman, Albert Taylor,	P. & S., N. Y., '64,	Old Mystic.
Chase, Arthur Alverdo,	Harvard, '01,	Plainfield.
Chatfield, Rollin Blackman,	Yale, '83,	Granby.
Cheney, Benjamin Austin,		
B.A., Yale, '88,	Yale, 90,	New Haven.
Chester, Thomas Weston,		
B.A., Rutgers, '92, M.A., '95,	P. & S., N. Y., '95,	Hartford.
Chipman, Edward Clifford,	P. & S., N. Y., '91,	New London.
Chipman, Ernest Dwight,	Yale, '97,	Waterbury.
Churchill, Asa Hopkins,	Yale, '57,	Meriden.
Clark, Arthur Norman,	P. & S., N. Y., '83,	South Norwalk.
Clark, Franklin Pierce,	P. & S., N. Y., '76,	Danbury.
Clark, Robert Moses,	Univ. Pa., '91,	New Britain.
Clary, George, A.B., '52, Dart-		
mouth,	Yale, '57,	New Britain.
Cloonan, John Joseph,	P. & S., Balt., '97,	Stamford.
Coates, Franklin Avery,		
A.B., '72; A.M., '75, Brown,	P. & S., N. Y., '76,	Mystic.
Cobb, Alfred Edward,	Yale, '93,	Falls Village.
Cochran, Levi Bennett,	Univ. Pa., '93,	Hartford.
Cogswell, William Badger,	Bellevue, '81,	Stratford.
Coholan, Michael James,	Univ. N. Y., '65,	New Britain.
Coleburn, Arthur Burr,	P. & S., N. Y., '90,	Middletown.
Conklin, James Henry,	Univ. Vt., '99,	Hartford.
Converse, George Frederick,	Yale, '87,	New Haven.
Coogan, Joseph Albert,	Bellevue, '76,	Windsor Locks.
Cook, Ansel Granville,	P. & S., N. Y., '87,	Hartford.
Cooke, Joseph Anthony,	Yale, '97,	Meriden.

Name.	Medical Graduation.	P. O. Address.
Cooley, Myron Lynus,	Buffalo, '86,	Waterbury.
Cooper, Louis Edward,		
Ph.B., Yale, '84,	Yale, '86,	Ansonia.
Coopa, Frank Harvey,	P. & S., Balt., '96,	Danielson.
Cowell, George B.,	P. & S., N. Y., '88,	Bridgeport.
Cowles, Frederick Stanley,	Yale, '93,	Essex.
Coyle, William Joseph,	Buffalo Med. Col., '85,	Windsor Locks.
Craig, Charles Franklin,	Yale, '94,	Danbury.
Craig, William Gibson,	Jefferson, '92,	Hartford.
Crane, Augustin Averill,		
B.A., Yale, '85,	Yale, '87,	Waterbury.
Crary, David,	Yale, '69,	Hartford.
Crossfield, Frederick Solon,	Bellevue, '78,	Hartford.
Crothers, Thomas Davison,	Albany, '65,	Hartford.
Crowe, Willis Hanford,	P. & S., N. Y., '96,	New Haven.
Crowley, William Holmes,	Buffalo Med. Col., '90,	Collinsville.
Curtiss, William Martin Stanley,	Balt. Univ. S. M., '93,	Bristol.
Cushing, William Henry,	Bellevue, '92,	Southington.
Daggett, William Gibbons,		
B. A., Yale, '80,	Univ. P., '84,	New Haven.
Darling, Ashael Ebenezer,	Harvard, '72,	Killingly.
Dart, Frederick Howard,	P. & S., N. Y., '84,	Niantic.
David, Adelard David,	Dartmouth, '89,	Waterbury.
Davis, Charles Henry Stanley,	Univ. N. Y., '66,	Meriden.
Davis, Edwin Taylor,	Univ. Vt., '88,	Ellington.
Davis, Elias Wyman,		
B.A., Yale, '80,	Yale, '92,	Seymour.
Davis, Gustav Pierpont,		
B. A., Yale, '66,	P. & S., N. Y., '69,	Hartford.
Davis, Warren Russell,	Univ. Vt., '82,	Voluntown.
Davison, Luther Augustus,	Univ. N. Y., '82,	Hartford.
Day, Fessenden Lorenzo, B.A.,		
Bates, '90,	Bellevue, '98,	Bridgeport.
Day, Loren True,	Yale, '80,	Westport.
Deane, Henry Augustus,	Dartmouth, '68,	South Windsor.
DeForest, Louis Shepard,		
B.A., Yale, '79; M.A.,		
Yale, '91,	Univ. Jena., '95,	New Haven.
DeHart, Clara Madana,	Woman's Med. Coll.,	
	N. Y. Inf., '94,	Cromwell.
Delaney, William Joseph,	McGill Univ., '87,	Naugatuck.
Delesdernier, Horace William,	Univ. Vt., '85,	Meriden.
DeLisser, Glenwood Medcalf,	Wash. Univ., '97,	Bridgeport.
Dennis, Frederic Shepard, B.A.,		
Yale, '72; M.R.C.S.,	Bellevue, '74,	Norfolk.
DeWolfe, Daniel Charles,	Univ. Vt., '88,	Bridgeport.
Dickerman, Wilton Elias, B.A.,		
Amherst, '90,	Yale, '93,	Hartford.
Diefendorf, Allen Ross,		
B.A., Yale, '94,	Yale, '96,	Middletown.
Donahue, James Joseph,	P. & S., Balt., '96,	Norwich.
Donaldson, William Henry,	Univ. N. Y., '81,	Fairfield.
Douglass, Edmund Peaslee,	Univ. N. Y., '89,	Groton.
Dowling, John Francis,	L. I. Hosp. Coll., '90,	Hartford.
Down, Edwin Augustus,	P. & S., N. Y., '87,	Hartford.
Downey, Roger Charles,	Univ. Vt., '92,	Middletown.
Downs, Frederick Bradley,	Univ. N. Y., '78,	Bridgeport.
Drake, Norman Lucie,	Univ. N. Y., '91,	Stonington.
Driscoll, Daniel Michael,	P. & S. N. Y., '00,	Bridgeport.
Dumontier, Jean,	Univ. Ghent, Belg., '89,	South Norwalk.
Dwyer, Patrick James,		
A.B., Fordham, '94,	Univ., N. Y., '97,	Waterbury.

ALPHABETICAL LIST OF MEMBERS.

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Name.	Medical Graduation.	P. O. Address.
Edgerton, Francis Daniels, A. B., Wesleyan, '61, A. M. Wesleyan, '64,	{ Univ. Vt., '63. P. & S., N. Y., '64,	Middletown.
Eggleston, Jeremiah Dewey,	P. & S., N. Y., '79,	Meriden.
Elliot, Gustavus, B. A., Yale, '77: A.M., Yale, '82,	P. & S., N. Y., '80,	New Haven.
Ellis, Thomas Long, B.A., Yale, '94,	Yale, '86,	Bridgeport.
Elmer, Oliver Edward,	P. & S., Balt., '94,	Hartford.
Ely, John Slade, Ph.B., Yale, '81, M.A., Columbia, '97,	P. & S., N. Y., '86, P. & S., N. Y., '91,	New Haven. Hartford.
Enders, Thomas Burnham,	Albany, '57,	Berlin.
Ensign, Robert Eleazer,	P. & S., N. Y., '02,	Norwich.
Evans, John Henry, Felly, John Wellington, A.M., Emporia, Kan., '97,	Jefferson, '84, P. & S., Balt., '86, Univ. N. Y., '79,	Hartford. Meriden. Thomaston.
Fenn, Ava Hamlin, Ferguson, George Dean, Ferrin, Carlisle Franklin, B.A., Univ. Vt., '91,	P. & S., N. Y., '95,	New London.
Ferris, Harry Burr, B. A., Yale, '87,	Yale, '90,	New Haven.
Field, Albert,	L. I. Coll. Hosp., '67,	E. Hampton.
Finch, George Terwilliger, Hobart, B.A., '75, M. A., Hobart, '78,	Bellevue, '77, Woman's Med. Col., of Penna., '98,	Thompsonville. Middletown.
Fisher, Jessie Weston,	Univ. Pa., '76, Univ. N. Y., '76, P. & S., Balt., '84, Univ. Vt., '96, Jefferson, '96, Yale, '78, Yale, '79, Yale, '95,	Middletown. Waterbury. Bridgeport. Hartford. Bridgeport. New Haven. Rockville. New Haven.
Fisher, William Edwin, Fiske, Isaac Parsons, Fitzgerald, Edward, Fitzgerald, William, Fleck, Harry Willard, Fleischner, Henry, Flint, Eli Percival, Flynn, James Henry Joseph, Fontaine, Alphonse, Foote., Charles Jenkins, B.A., Yale, '83,	Laval Uni., '92, Harvard, '87, Bellevue, '93, Univ. N. Y., '84, Yale, '99,	Norwich. New Haven. Bridgeport. Washington.
Ford, George Skiff, Ford, William J., Foster, Dean, M. A., Univ., Kan., Foster, John Pierpont Codring- ton, B.A., Yale, '69,	Yale, '75, Harvard, '82, Univ. N. Y., '76, Univ. & Belle., '02, Univ. N. Y., '83, L. I. Hosp., Coll., '93, P. & S., N. Y., '91, L. I. Coll. Hosp., '93,	Stamford. New Haven. Wash'ton, D. C. Willimantic. Clinton. Wethersfield. Uncasville. Deep River. Waterbury.
Fox, Charles James, Fox, David Austin, Fox, Edward Gager, Fox, Morton Earl, French, Howard Truman, Freney, John Daniel, Froelich, Charles Edward, M.A., Copenhagen, '64, Frost, Charles Warren Selah, Fuller, Horace Smith, Amherst, B.A., '58: A.M., '61,	Copenhagen, '70, P. & S., N. Y., '80, P. & S., N. Y., '65,	Hartford. Waterbury.
Galvin, William, Gandy, Raymond Reeves, Gardner, James Lester, Garlick, Samuel Middleton, B.A., Dart., '74,	Univ. Vt., '92, Univ. Pa., '99, Univ. Vt., '81, Harvard, '77,	Meriden. Colchester Central Village. Bridgeport.

Name.	Medical Graduation.	P. O. Address.
Gaylord, Charles Woodward, B.A., Yale, '70,	Yale, '72,	Branford.
Gilbert, Samuel Dutton, B.A., Yale, '69,	Yale, '71,	New Haven.
Gildersleeve, Charles Childs,	Yale, '96,	B. Woodstock.
Gilliam, William S.,	Univ. Pa., '88,	So. Manchester
Gill, Michael Henry,	Yale, '96,	Hartford.
Gillin, Charles Adelbert,	Univ. N. Y., '83,	Berlin.
Ginnack, Frederick,	P. & S., N. Y., '67,	Rockville.
Girouard, Joseph Arthur,	Balt. Med. Coll., '89,	Willimantic.
Gladwin, Ellen Hammond,	W. Med., N. Y., '72,	Hartford.
Godfrey, Charles Cartlidge,	Dartmouth, '83,	Bridgeport.
Gold, James Douglass, Ph.B., Yale, '88,	P. & S., '91,	Bridgeport.
Gompertz, Louis Michael,	Yale, '96,	New Haven.
Goodenough, Edward Winchester, B.A., Yale, '87,	Yale, '93,	Waterbury.
Goodrich, Alfred Russell,	Berkshire, '46,	Vernon.
Goodrich, Charles Augustus, B.S., Mass. Ag. Col., '92,	P. & S., N. Y., '96,	Hartford.
Goodrich, William Albert,	Med. Chi., Phil., '02,	Waterbury.
Goodwin, Ralph Schuyler, Jr., Ph.B., Yale, '90,	P. & S., N. Y., '92,	New Haven.
Goodyear, Robert Beardsley,	Yale, '68,	North Haven.
Gordon, William Francis,	L. I. Hosp. Coll., '96,	Danbury.
Gorham, Andrew Bennett,	Yale, '79,	Wilton.
Gorham, Frank,	Yale, '76,	Lyon's Plain.
Granniss, John Henry,	Yale, '68,	Old Saybrook.
Granniss, Irwin,	Yale, '96,	New Haven.
Graves, Charles Burr, B.A., Yale, '82,	Harvard, '86,	New London.
Graves, Frederick Chauncey,	Univ. N. Y., '88,	Bridgeport.
Graves, Frederick George,	Yale, '92,	Waterbury.
Gray, William Henry,	P. & S., N. Y., '89,	Old Mystic.
Gray, William Wetmore, B.S., Dickinson, '85,	Bellevue, '90,	Bridgeport.
Gregory, James Glynn, B.A., Yale, '65,	P. & S., N. Y., '68,	Norwalk.
Griggs, John Bagg,	Yale, '97,	Stamford.
Griswold, Frederick Pratt,	P. & S., N. Y., '76,	Meriden.
Griswold, William Loomis, Ph. B., Yale, '81	P. & S., N. Y., '85,	Greenwich.
Guild, Frank Eugene,	L. I. Hosp. Coll., '85,	Windham.
Hadley-Judd, Etta May,	Women's Med. Coll., Phila., '95,	Bethlehem.
Haile, Edward Aloysius,	Univ. Balt., '93,	Derby.
Hall, Edward Dormenio,	Harvard, '73,	Meriden.
Hall, Joseph Barnard,	Yale, '92,	Hartford.
Hallock, Frank Kirkwood, A.B., Wesleyan, '82, A.M., '85,	P. & S., N. Y., '85,	Cromwell.
Hamant, Irving Louis,	L. I. Hosp. Coll., '90,	Norfolk.
Hamilton, Charles Allen,	Univ. Vt., '86,	Waterbury.
Hammond, Henry Louis, Ph.B., Brown, '65,	Harvard, '66,	Killingly.
Hammond, Samuel Mowbray, Ph.B., Yale, '93,	Yale, '96,	New Haven.
Hanchett, Thatcher Swift,	Bellevue, '64,	Torrington.
Hanrahan, Daniel Aloysius,	Bellevue, '96,	Stamford.
Harriman, Patrick Henry,	Univ. N. Y., '84,	Norwich.
Harris, George Robert,	P. & S., N. Y., '85,	Norwich.
Hart, Charles Remington,	P. & S., N. Y., '59,	Bethel.
Hartshorn Willis Ellis, Ph. B., '95, Colo. Col.,	Univ. Min., '98,	New Haven.

Name.	Medical Graduation.	P. O. Address.
Haven, William Chadbourne,	Univ. N. Y., '77,	Coventry.
Hawkes, Wm. Whitney, B.A.,		
Yale, '79,	Yale, '81,	New Haven.
Hayes, Arthur Douglass,	Dartmouth, '86,	Hartford.
Hayes, James Dermot, B.S.,		
Man. Coll., N. Y.,	Univ. N. Y., '94,	Torrington.
Hayes, John Frances,	Univ. N. Y., '79,	Waterbury.
Hazen, Miner Comstock,	Univ. Mich., '56,	Haddam.
Hazen, Robert,	Univ. Vt., '98,	Thomaston.
Heady, Elias Buel,	Yale, '72,	Milford.
Heery, Francis Patrick,	Yale, '98,	New Haven.
Hemingway, George Isaac,	Univ. Vt., '97,	New Haven.
Henkle, Emanuel Alexander,	Cornell, '99,	New London.
Henn, Louis David,	Univ., N. Y., '98,	New Britain.
Henrahan, Bernard Elliot,	Jefferson, '97,	New Haven.
Hertzberg, George Robert,	Dartmouth, '99,	Stamford.
Hetzl, Joseph Linn,	Bellevue, '91,	Southport.
Hewes, Frank William,	Univ. Vt., '94,	Groton.
Heyer, Harold Hankinson,	Univ. N. Y., '87,	New London.
Higgins, Harry Eugene,	Univ. N. Y., '96,	Norwich.
Higgins, Royal Lacey,	Bellevue, '87,	Norwalk.
Higgins, William Lincoln,	Univ. N. Y., '90,	So. Coventry.
Hill, Charles Edwin, B.A.,		
Yale, '76,	Harvard, '79,	E. Killingly.
Hill, Seth,	Yale, '66,	Stepney.
Hill, William Martin,	Univ. Va., '97,	Naunk.
Hills, Laura Heath,	W. Med. Coll., Pa.,	Willimantic.
Hills, Thomas Morton,	Yale, '63,	Willimantic.
Hogan, William John,	Yale, '98,	Torrington.
Holbrook, Charles Werden, M.A.,		
Amherst, '93,	Yale, '96,	East Haven.
Holbrook, Lowell,	Univ. N. Y., '49,	Thompson.
Holmes, Arthur Almond,	Harvard, '65,	Bridgeport.
Holmes, George James,	Albany, '82,	New Britain.
Holroyd, Joseph Scripture,	P. & S. N. Y., '95,	Waterville.
Horton, William Wickham,	Univ. N. Y., '79,	Bristol.
Hotchkiss, Norton Royce,	Univ. Md., '91,	New Haven.
Houghton, Simon Willard,	Bellevue, '79,	Hazardville.
Howard, Arthur Wayland,	Univ. N. Y., '90,	Wethersfield.
Howard, John,	Dartmouth, '81,	Hartford.
Howd, Salmon Jennings,	Jefferson, '83,	Winsted.
Howe, Harmon George,	Univ. Vt., '73,	
	P. & S. N. Y., '75,	Hartford.
Howe, Herbert H.,	Univ. Vt., '80,	Yantic.
Hoyt, Curtis Clark,	P. & S. N. Y., '87,	Bridgeport.
Hubbard, Charles Henry,	Yale, '60,	Essex.
Hubbard, Stephen Grosvenor,		
M.A., Yale, '60,	Dartmouth, '43,	New Haven.
Hulbert, William Sharon,	Univ. N. Y., '80,	Winsted.
Hungerford, Henry Edward,	Yale, '98,	Waterbury.
Huntington, Samuel Henry,	Yale, '76,	Norwalk.
Hurd, Alonzo L., B.S., Me., '82,	Univ. Vt., '91,	Somers.
Hurlbutt, Augustin Moen,		
B.A., Yale, '76,	P. & S. N. Y., '79,	Stamford.
Hyde, Fritz Carleton,	Ann Arbor, '00,	Greenwich.
Hynes, Thomas Vincent,	Yale, 1900,	New Haven.
Ingalls, Phineas Henry, A.		
B., Bowdoin, '77; A. M.,		
Bowdoin '85,	P. & S. N. Y., '80,	Hartford.
Irving, Samuel Wellington,	Yale, '91,	New Britain.
Isham, Oliver Kingsley,	Univ. N. Y., '88,	Hartford.
Ivers, Richard William,	Balt. Med. Coll., '95,	Bridgeport.
Ives, Robert Shoemaker, B.A.,		
Yale, '64, M.A.,	Yale, '66,	New Haven.
Ives, Sarah Edith,	W. Coll., Pa., '98,	Middletown.

Name.	Medical Graduation.	P. O. Address.
Jennings, George Herman,	L. I. Hosp. Coll., '75,	Jewett City.
Johnson, Edwin Hines,	Univ. Vt., '83,	Naugatuck.
Johnson, Frederick Eugene,	Univ. N. Y., '69,	Manasfield.
Johnson, John Murray,	L. I. Hosp. Coll., '95,	Bridgeport.
Johnson, John William,	P. & S., Balt., '93,	Torrington.
Johnson, Marcus Morton,		
Ph.B., Brown, '70,	Univ. N. Y., '77,	Hartford.
Jones, Daniel Albion, B.A., Yale,		
'84; D.M.D., Harvard, '89,	Yale, '92,	New Haven.
Joslin, George Harvey,	Univ. Vt., '87,	Mt. Carmel.
Judson, Walter, B. A., Yale,		
'64; M.A., '97,	P. & S., N. Y., '70,	New Haven.
Judson, William Henry,	Jefferson, '78,	Danielson.
Kane, Thomas Francis,	Bellevue, '87,	Hartford.
Kellogg, Evernghim Kenneth,	P. & S., N. Y., '98,	New Britain.
Kelly, Michael J.,	Balt. Med. Coll., '97,	Warehouse P'nt.
Kelsey, Ernest Russell,	Maryland, '01,	Winsted.
Kendall, John Calvin, B.A.,		
Yale, '70,	P. & S., N. Y., '75,	Norfolk.
Keniston, James Mortimer,	Harvard, '71,	Hartford.
Kenna, William Matthew,		
Ph.B., Yale, '90,	Yale, '92,	New Haven.
Kennedy, Paul Bernard,	Bellevue, '96,	Derby.
Kent, John Bryden,	Harvard, '60,	Putnam.
Kiernan, Walter Henry,	Trinity, Toronto, '97,	Danbury.
Kilbourn, Clarence Leishman,	Yale, '97,	New Haven.
Kilbourn, Joseph Austin,	P. & S., Balt., '97,	Hartford.
Kimball, Rush Wilmot, A.B.,		
'87, Williams,	L. I. Hosp. Coll., '90,	Norwich.
King, Howard Frost,	Albany Med. Col., '99,	Windsor.
Kingman, James Henry, A.		
B., Yale, '82,	P. & S., N. Y., '85,	Middletown.
Kingsbury, William Sanford,	Yale, '96,	Glastonbury.
Kirby, Frank Alonzo,	Columb. Univ.,	
	Wash., D. C., '95,	
Klenke, Henry Frederick,	Univ. N. Y., '92,	New Haven.
Knight, Charles Milo,	Louisville, '93,	New Haven.
Knight, George Henry, A.M.,		Chaplin.
Yale, '98,	P. & S., N. Y., '86,	Lakeville.
Knight, William Ward,	Univ. N. Y., '76,	Hartford.
Kowalewski, Victor Alexander		
B. A., Yale, '99,	Yale, '02,	West Haven.
Lally, Thomas John,	Albany, '99,	Waterbury.
Lamb, Chauncey Stafford,	Buffalo, '93,	New Haven.
Lambert, Benjamin Lott,	Univ. N. Y., '83,	New Haven.
Lampson Jr., Edward Rut-		
ledge A. B., Trinity, '91,	P. & S., N. Y., '96,	Hartford.
LaPierre, Julian,	Bellevue, '71,	Norwich.
LaPoint, John William Henry,	Laval Uni.,	
	Montreal, '92,	Meriden.
LaRue, Omer,	Vict., Montreal, '71,	Putnam.
Lauder, Robert, M.A., Wes-		
leyan, '89,	Yale, '71,	Bridgeport.
Law, Homer Lycurgus,	Jefferson, '69,	Hartford.
Lawrence, George Washington,	Yale, '90,	East Berlin.
Lawson, George Newton, B.A.,		
Yale, '90,	Yale, '92,	M. Haddam.
Lawton, Franklin Lyman,		
Ph.B., Yale, '90,	Yale, '93,	Hartford.
LeClair, Charles Joseph,	Victoria, '87,	Danielson.
Lee, Frank Herbert,	Albany, '88,	Canaan.
Lee, Harry Moore,	Columbia, '98,	New London.
Lemmer, George Edward,	Bellevue, '85,	Danbury.

ALPHABETICAL LIST OF MEMBERS.

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Name.	Medical Graduation.	P. O. Address.
Lewis, George Francis, B.A., '64,	Yale, '65,	Collinsville.
Lewis, George Frederick, B.A., Trinity, '77,	Yale, '84, Univ. N. Y., '53,	Stratford. Hartford.
Lewis, John Benjamin, Lindsley, Charles Augustus, B.A., Trinity, '49; M.A.,	Yale, '52,	New Haven.
Lindsley, Chas. Purdy, Ph.B., Yale, '75,	Yale, '73, Yale, '97, Yale, '91,	New Haven. New Haven. Bridgeport.
Littlejohn, Percy Duncan, Lockhart, Reuben Arthur, Look, Frank Byron, Loomis, Francis Newton, B.A., Yale, '81,	Bowdoin, '84,	Hartford.
Loveland, Ernest Kilburn, Loveland, John Elijah, A.B., Wesleyan, '89,	Yale, '83, Yale, '97,	Derby. Watertown.
Lowe, Henry Russell, Lowe, Russell Walter, Luby, John Francis, Ph.B., Yale, '76,	Harvard, '82, Dartmouth, '83, Univ. N. Y., '89,	Middletown. Woodstock Valley. Ridgefield.
Luther, Calista Vinton, Lynch, John Charles, Lyon, Edwin Bradbury, Lyons, Andrew Wolff, MacLaren, William Stevenson, Maher, James Stephen, Ph.B., Yale, '92,	P. & S., N. Y., '78, Wom. Coll., Penn., '85, Univ. N. Y., '86, Berkshire, '63, Columbus, '76, P. & S., N. Y., '89, Yale, '96, Yale, '87,	New Haven. Saybrook. Bridgeport. New Britain. Bridgeport. Litchfield.
Maher, Stephen John, Mailhouse, Max, Ph.B., Yale, '76,	Yale, '78, Univ. Pa., '95, Univ. N. Y., '96, L. I. Hosp. Coll., '93, Univ. Naples, '93, Univ. Vt., '82,	New Haven. New Haven. New Haven. Middletown. Waterbury. Ridgefield. New Haven. New Haven.
Maitland, Lewis, Maloney, Daniel Joseph, Mansfield, Howard Parker, Mariani, Nicola, Marsh, Arthur Washburn, Mason, Jarvis King, Yale, B.A., '55; M.A., '59,	Harvard, '61, P. & S., N. Y., '91, P. & S., N. Y., '79, Milwaukee, '95, Chicago, '76, Univ. Vt., '85, Cincinnati, '57,	Suffield. S. Coventry. Durham. Willimantic. Bridgeport. Burnside. Hartford.
Mason, Louis Irving, Mathewson, Earl, May, George William, May, Jacob Rush, Mayberry, Franklin Hayden, Mayer, Nathan, McCabe, Edward Michael, B.A., Manhattan, '83,	Yale, '87, P. & S., N. Y., '94, Univ. N. Y., '71,	New Haven. Hartford. Waterbury.
McCook, John Butler, McDonald, Edward Walsh, McDonnell, Ralph Augustine, B.A., Yale, '90,	Yale, '92, Univ. N. Y., '85, Jefferson, '70, Yale, '97, Victoria, '87, P. & S., N. Y., '99,	New Haven. Greens Farms. Wallingford. New Haven. N.G'svenordale. Hartford.
McFarland, David Walter, McGaughey, James David, McIntosh, Edward Francis, McIntosh, James Fabien, McKee, Frederick Lyman, McKnight, Everett James, B.A., Yale, '76,	P. & S., N. Y., '79, Jefferson, '98, Dartmouth, '96, Yale, '62, { Wom. Med. Coll., { Phil., '88, McGill Univ., '75, Bellevue, '90,	Hartford. New Haven. New Haven. New Haven.
McMaster, Gilbert Totten, McNeill, Archibald, McNeill, Rollin, Mead, Kate Campbell,		Middletown. Stamford. Meriden.
Meek, James Albert, Meeks, Harold Albert,		

Name.	Medical Graduation.	P. O. Address.
Miles, Henry Shillingford, Ph.G., N. Y., '88,	P. & S., N. Y., '91,	Bridgeport.
Miller, George Root,	P. & S., N. Y., '88,	Hartford.
Miller, William Radley,	Albany, '98,	Southington.
Minor, George Maynard,	L. I. Hosp. Coll., '85,	Waterford.
Mitchell, James Thomas,	Univ. N. Y., '91,	Middletown.
Monagan, Charles Andrew, B.S., Trinity, '88,	Univ. Pa., '88,	Waterbury.
Monahan, David Henry, M.A., Manhattan, '83,	Dartmouth, '00,	Bridgeport.
Monahan, Joseph Bernard,	Dartmouth, '94,	New Haven.
Moody, Mary Blair,	Buffalo, '78,	New Haven.
Moore, Homer Franklin,	Wash. Univ., Mo., '88,	Bethel.
Moore, Howard Doolittle,	Bellevue, '97,	Torrington.
Moore, James Albert, B.A., Yale, '92,	Yale, '94,	New Haven.
Morasse, Lewis Ovid,	Univ. Vict., '84,	Putnam.
Morgan, William Dennison, A.B., Trinity, '72,	P. & S., N. Y., '76,	Hartford.
Moriarty, James Ligouri,	Harvard, '96,	Waterbury.
Morrell, Frederick Augustus, B.A., Oberlin, '91; M.A.,	L. I. Hosp. Coll., '85,	Putnam.
Moser, Oran Alexander,	Yale, '02,	East Windsor.
Moulton, Edward Seymour, B. A., Oberlin, '91,	Yale, '94,	New Haven.
Mountain, John Henry,	Jefferson, '96,	Middletown.
Mulcahy, Thomas Aloysius,	P. & S., N. Y., '01,	Hartford.
Munger, Carl Eugene, Ph.B., Yale, '80,	P. & S., N. Y., '83,	Waterbury.
Munson, Leonard Walter,	Georgetown Univ., '96,	Stamford.
Murphy, James,	Univ. Pa., '95,	Portland.
Murphy, Michael Daniel,	Bellevue, '84,	Middletown.
Murphy, Walter Graham,	Albany Med. Coll., '90,	E. Hartford.
Nadler, Alfred Goldstein, B.A., Yale, '93,	Yale, '96,	New Haven.
Naylor, James Henry,	Univ. Vt., '85,	Hartford.
Nelson, Abel Ward,	Harvard, '61,	New London.
Nettleton, Francis Irving, Ph. B., Yale, '94,	Yale, '97,	Shelton.
Nettleton, Irving LaField,	L. I. Coll. Hosp., '98,	Bridgeport.
Newton, Cyrus Brownlie,	Yale, '58,	Stafford Springs.
Newton, Matthew Turner,	Yale, '51,	Suffield.
Nichols, Edward Payson, A.B., (Col. N. J., (Princeton) '48; A.M., '51,	P. & S., N. Y., '52,	Killingworth.
Nickerson, Nehemiah,	N. Y. Med. Coll., '67,	Meriden.
Nicoll, John,	Yale, '54,	New Haven.
Noble, Henry Smith, A.B., '59,	P. & S., N. Y., '71	Middletown.
Nolan, Daniel Andrew, Ph.G., Phil., '93,	Med. Chir. Col., Pa., Tufts, '98,	Middletown.
North, Caroline,	L. I. Hosp. Coll., '73,	Wallingford.
North, James Howard,	Louisville, '94,	Goshen.
North, John Leopold,		Avon.
Norwood, Paul, L.L.B., State Univ., Iowa '90,	Omaha Med. Coll., '87,	Ansonia.
Noxon, George Henry,	Balt. Med. Coll., '83,	Darien.
Ober, George Eugene,	Univ. Vt., '90,	Bridgeport.
O'Connell, Thomas Smith,	P. & S., Balt., '92,	E. Hartford.
O'Connell, Timothy Grattan,	Yale, '99,	Thomaston.
O'Connor, Matthew Charles, A B. St. Francis X., N. Y., '69,	P. & S., N. Y., '73,	New Haven.

Name.	Medical Graduation.	P. O. Address.
O'Connor, Patrick Thomas,	Bellevue, '92,	Waterbury.
O'Flaherty, Ellen Pembroke,	Cornell, '01,	Hartford.
O'Flaherty, John,	Albany, '64,	Hartford.
O'Hara, Bernard Augustine,	Bellevue, '82,	Waterbury.
O'Hara, William James Aloysius,	P. & S., Balt., '98,	Bridgeport.
O'Laughlin, Thomas Francis,	Univ. N. Y., '96,	Rockville.
Osborn, George Wakeman,		
B. A., Yale, '84,	P. & S., N. Y., '87,	Bridgeport.
Osborne, Oliver Thomas,	Yale, '84,	New Haven.
Otis, Samuel Dickinson,	Univ. N. Y., '77,	Meriden.
Overlock, Selden Barden,	Bellevue, '89,	Pomfret.
Paddock, Lewis Sloat, M.A.,	N. Y. Med. Coll., '54,	Norwich.
Page, Charles Ithamar,	P. & S., N. Y., '90,	Litchfield.
Paine, Robert Child,	Dartmouth, '1900,	Thompson.
Pallman, Theodore Dominic,	Yale, '97,	New Haven.
Park, Charles Edwin,	Yale, '81,	New Haven.
Parker, Theodore Raymond,	Univ. N. Y., '80,	Willimantic.
Farnele, George Luther,		
D.M.D., Harvard, '70,	L. I. Hosp. Coll., '69,	Hartford.
Parsons, Edward Field, A.B.,		
Williams, '48,	P. & S., N. Y., '58,	Thompsonville.
Peck, Anthony, B.A.,		
Hamilton, '72,	Univ. N. Y., '75,	Norwich.
Peck, Robert Ellsworth,		
Ph.B., Yale, '90,	Yale, '98,	New Haven.
Peckham, Lucy Creemer,	Wom. Med., Pa., '85,	New Haven.
Perdue, Robert Ernest,	Starling, '92,	Southport.
Perkins, Charles Harris,	P. & S., N. Y., '91,	Norwich.
Perkins, William Sheldon Clark,	P. & S., N. Y., '60,	Norwich.
Phelps, Charles Dickinson, B.A.,		
Amherst, '89; M.A., Amherst,		
'97,	P. & S., N. Y., '95,	West Haven.
Phillip, Rosavelle Gardner,	(Wom. Med. Coll.,	
	(N. Y. Inf., '75,	Stamford.
Phillips, Alfred Noroton,	P. & S., N. Y., '83,	Stamford.
Pierce, Elbridge Worthington,	Univ. N. Y., '85,	Meriden.
Pierson, Samuel,	P. & S., N. Y., '81,	Stamford.
Pinney, Royal Watson,	P. & S., N. Y., '88,	Derby.
Pitman, Edwin Parker, B.A.,		
Dartmouth, '86,	Dartmouth, '91,	New Haven.
Platt, William Logan,	P. & S., N. Y., '81,	Torrington.
Plummer, Paul,	Univ. Vt., '94,	Collinsville.
Plumstead, Matthew Woodbury,		
Pomeroy, Nelson Asa,	Jefferson, '87,	E. Haddam.
Poore, John Robinson,	P. & S., N. Y., '96,	Waterbury.
Porter, George Elmer, B.S.,	Harvard, '94,	Waterbury.
Dartmouth, '88,		
Porter, George Loring, B.A.,	Dartmouth, '91,	Warehouse P't.
Brown Univ., '59,		
Porter, Isaac Napoleon, B.A.,	Jefferson, '62,	Bridgeport.
Lincoln Univ., '90,		
Porter, William, Jr.,	Yale, '98,	New Haven.
Potter, Frank Edward,	Chic. Med. Coll., '81,	Hartford.
Powers, Frederick,	P. & S., N. Y., '89,	Portland.
Pratt, Arthur Milon,	P. & S., N. Y., '70,	Westport.
Pratt, Edward Loomis,	Bellevue, '92,	Deep River.
Pratt, Elias,	Univ. N. Y., '84,	Winsted.
Purinton, Charles Oscar,	P. & S., N. Y., '87,	Torrington.
Ph. B., Yale, '97,		
Rainville, Frederick E.,	Yale, 1900,	West Hartford.
	Univ. Vt., '91,	Wauregan.

Name.	Medical Graduation.	P. O. Address.
Ramsay, Otto Gustaf, M.A., Yale, '01, Hon.,	Univ. Va., '90,	New Haven.
Rand, Richard Foster, Ph.B., Yale '95.	Johns Hopkins, '00,	New Haven.
Randall, William Sherman, Ph.B., Yale, '83,	Yale, '82,	Shelton.
Rankin, Charles Goodrich, A.B., Williams, '84, A.M., '87,	Chic. Med. Coll., '86,	Glastonbury.
Reardon, Thomas Francis,	Univ. Vt., '94,	Thompsonville.
Reeks, Thomas Eben,	Univ. Md., '01,	New Britain.
Reidy, David Dillon,	Med. Chi., Phil., '99,	Winsted.
Reilly, Francis Henry,	Yale, '97,	New Haven.
Kelly, James Michael,	Yale, '78,	New Haven.
Reinert, Emil Gustav,	Balt. Med. Coll., '95,	Hartford.
Reynolds, Herbert Sumner,	Univ. N. Y., '81,	Clinton.
Rice, Watson Emmons,	Univ. Mich., '72,	Stamford.
Richards, William Spencer,	Univ. N. Y., '89,	W. Winsted.
Ring, Henry Wilson, A.B.		
Bowdoin, '79, M.A., Bow-		
doin, '82,	Me. Med. Coll., '81,	New Haven.
Rising, Harry Breed,	Yale, '85,	So. Glastonbury.
Rising, Henry Martin,	Yale, '68,	So. Glastonbury.
Robbins, Charles Henry,	Med. Coll., Balt., '95,	New Haven.
Robbins, George Orrin,	Yale, '79,	Waterbury.
Robbins, James Watson,	Bellevue, '80,	Naugatuck.
Roberts, Edward Kilbourne, Ph.B., Yale, '78,	Yale, '80,	New Haven.
Robinson, Joseph,	P. & S., N. Y., '98,	West Cornwall
Robinson, Myron Potter,	Yale, '95,	Windsor Locks.
Robinson, Myron Winslow,	Berkshire, '60,	Noroton.
Robinson, Paul Skiff, Ph.B., Yale, '89,	Yale, '91,	New Haven.
Robinson, Rienzi,	L. I. Hosp. Coll., '69,	Danielson.
Rockwell, Thomas Francis,	Univ. N. Y., '81,	Rockville.
Rodman, Charles Shepard,	P. & S., N. Y., '68,	Waterbury.
Rogers, Francis Joseph,	Univ. Pa., '72,	Stamford.
Rogers, Frederick,	Univ. N. Y., '63,	Willimantic.
Rogers, Thomas Weaver,	P. & S., N. Y., '90,	New London.
Root, Edward King,	Univ. N. Y., '79,	Hartford.
Root, Joseph Edward, B.S., Boston Univ., '76.	P. & S., N. Y., '83,	Hartford.
Rose, John Henry,	Univ. N. Y., '92,	Hartford.
Rowley, Alfred Merriman,	Univ. Vt., '97,	Hartford.
Ruickoldt, Arthur,	Univ. Vt., '97,	New Haven.
Ruland, Fred Davis,	P. & S., N. Y., '89,	Westport.
Russell, George Washington,	Bellevue, '96,	Waterbury.
Russell, Gurdon Wadsworth, Trinity. B.A., '34; M.A., '37,	Yale, '37,	Hartford.
Russell, Thomas Hubbard, Ph.B., Yale, '72,	Yale, '75,	New Haven.
Russell, William Spencer,	Yale, '80,	Wallingford.
Ryan, Patrick Joseph,	Niagara, '98,	Hartford.
Ryan, Timothy Mayher, A.B., Lovola, Coll.,	Baltimore, '02,	Torrington.
Ryder, Charles Ambler,	Yale, '98,	Cornwall B'dge
Sanford, Leonard Luther, B.A., Yale, '90,	Yale, '93,	New Haven.
Sanford, Ward Harding,	Balt. Med. Coll., '95,	New Haven.
Schavoir, Frederic,	P. & S., Balt., '87,	Stamford.
Scoville, Clarence Henry,	Balt. Med. Coll., '92,	New Canaan.
Scranton, William Benton, A.B., Yale, '78,	P. & S., N. Y., '81,	E. Hartford.
Sears, Cushman Allen,	Univ. N. Y., '62,	Portland.
Seaver, Jay Webber, B.A., Yale, '80, M.A., '93,	Yale, '85,	New Haven.

ALPHABETICAL LIST OF MEMBERS.

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Name.	Medical Graduation.	P. O. Address.
Sedgwick, James Theodore,	Univ. N. Y., '85,	Litchfield.
Segur, Gideon Cross,	P. & S. N. Y., '82,	Hartford.
Selleck, Nathaniel,	Univ. N. Y., '89,	Danbury.
Sellew, Phillip Hamilton,	Jefferson, '90,	Salisbury.
Shahan, Dennis Joseph,	Univ. Vt., '85,	Norwich.
Shannon, James Bernard,	Victoria, '89,	Danielson.
Sharpe, Elmer Thomas,	Univ. N. Y., '95,	Derby.
Sheedy, George Francis,		
Ph.B., Yale, '99,	Yale, '02,	Bridgeport.
Sheehan, William Joseph, B.S.,		
Manhattan Col., '92,	Yale, '95,	New Haven.
Shelton, Gould Abijah, M.A.,		
Yale, '91,	Yale, '69,	Shelton.
Shepard, Durell,	Yale, '64,	West Haven.
Shepard, John McIntosh,	Univ. N. Y., '90,	Madison.
Shepherd, George Rubens,	Yale, '66,	Hartford.
Sherer, Henry Clifford,	Univ. N. Y., '92,	South Norwalk.
Sherrill, George,	P. & S., '91,	Stamford.
Simpson, Frederick Thomas,		
B.A., Yale, '79,	Me. Med. Coll., '84,	Hartford.
Skinner, Clarence Edward,	Yale, '91,	New Haven.
Skinner, Leander Zebinah,	Balt. Med. Col., '94,	Windsor.
Slatery, Morris Dove,	Yale, '92,	New Haven.
Sleeper, George Everest,	Dartmouth, '95,	Hartford.
Sloan, Thomas George,	P. & S. N. Y., '99,	F. Manchester.
Smith, Andrew Jackson,	P. & S. N. Y., '63,	Bridgeport.
Smith, Edward Dorland, A.B.,		
Yale, '96,	Yale, '99,	Bridgeport.
Smith, Earl Terry,	Yale, '97,	Hartford.
Smith, Edward Everett,	L. I. Hosp. Coll., '71,	South Wilton.
Smith, Edwards Montrose,	P. & S. N. Y., '82,	Bridgeport.
Smith, Edward Wier, A.B.,		
Yale, '78,	McGill, Mont., '82,	Meriden.
Smith, Ernest Herman, A.B.,		
Amherst, '85,	P. & S. N. Y., '89,	Redding.
Smith, Frank Lewis,	Univ. N. Y., '75,	Stafford Sp'gs.
Smith, Frank Llewellyn,	Albany, '83,	Bridgeport.
Smith, Frederick Sumner,		
B.A., Yale, '79,	Yale, '82,	Chester.
Smith, Herbert Eugene,		
Ph.B., Yale, '79,	Univ. Pa., '82,	New Haven.
Smith, Henry Hubert,	Jefferson, '77,	New Haven.
Smith, Howard Franklin,		
B.A., Yale, '94,	Yale, '96,	Hartford.
Smith, Junius Foster,	L. I. Hosp. Coll., '90,	Brookfield.
Smith, Marvin,	Univ. N. Y., '83,	New Haven.
Smith, Newton Phineas,	P. & S. N. Y., '82,	Norwich.
Smith, Oliver Cotton,	L. I. Hosp. Coll., '83,	Hartford.
Smyth, Herbert Edmund,	McGill Univ., '84,	Bridgeport.
Snow, Frank Simeon,	Albany, '89,	Hartford.
Spencer, William David,	P. & S. N. Y., '76,	Saybrook.
Sperry, Frederick Noyes,	Yale, '94,	New Haven.
Sprenger, William,	Univ. Vt., '91,	New Haven.
Spring, Frederick,	Univ. N. Y., '85,	Naugatuck.
Standish, James Herbert,	Univ. N. Y., '85,	Hartford.
Stanley, Charles Everett,	Univ. Pa., '76,	Middletown.
Stanton, George Dallas,	Bellevue, '65,	Stonington.
Stanton, John Gilman,		
B.A., Amherst, '70,	Wurtsburg, '78,	New London.
Stanton, Thomas Francis,	P. & S., Baltimore, '96,	Bridgeport.
Staub, George Edwards,	L. I. Hosp. Coll., '93,	New Milford.
Steadman, Willard George,	Bellevue, '74,	Southington.
Stearns, Henry Putnam,		
B.A., Yale, '83; M.A., '86,	Yale, '85,	Hartford.

Name.	Medical Graduation.	P. O. Address.
Steele, Henry Merriman, Ph.B., Yale '94,	Johns Hopkins, '02.	New Haven.
Steiner, Walter Ralph, A.B., Yale, '92, M.A., Yale, '95,	Johns Hopkins, '98,	Hartford.
Stetson, James Ebenezer,	Yale, '81,	New Haven.
Stevens, Frank William, St. John, Samuel Benedict, B.A., Yale, '66,	Yale, '00,	Bridgeport.
Stone, Jay Stephen,	P. & S., N. Y., '75,	Hartford.
Storrs, Eckley Raynor,	P. & S., N. Y., '65,	New Britain.
Stratton, Edward Augustus,	Jefferson, '90,	Hartford.
Street, Philo William,	Univ. N. Y., '83,	Danbury.
Stretch, James,	Univ. Vt., '92,	Suffield.
	Univ. Coll., Richmond, Va., '02,	Stafford S.
Strosser, Hermann,	Univ. Berlin, '84,	New Britain.
Sullivan, Daniel,	Univ. N. Y., '97,	New London.
Sullivan, Daniel Francis, A.B., Niagara Univ., '89,	Niagara Univ., '91,	Hartford.
Sullivan, John Francis, B.A., Yale, '90,	P. & S., N. Y., '94,	New Haven.
Sumner, Charles Fletcher,	Univ. W. N. Y., '40,	Bolton.
Swain, Henry Lawrence,	Yale, '84,	New Haven.
Swasey, Erastus Perry,	P. & S., N. Y., '69,	New Britain.
Sweet, Josiah,	Univ. Vt., '78,	N. Hartford.
Taft, Charles Ezra,	Harvard, '86,	Hartford.
Tanner, Alfred Herbert,	Bellevue, '74,	Brooklyn.
Taylor, John Clifton,	Mich. Univ., '91,	New London.
Teele, Julia Ernestine, A.B., Tabor, '85,	Women's Med. Coll., Pa., '88,	New Haven.
Tenney, Arthur John, Ph.B., Yale, '77,	Yale, '83,	Branford.
Thibault, Louis Joseph,	Yale, 1900,	Waterbury.
Thompson, George,	Me. Med. Coll., '89,	Taftville.
Thompson, Emma Jane,	Women's Med. Coll., N. Y. Inf., '96,	Hartford.
Thompson, Harriet Adaline,	Women's Med. Coll., Penn., '98,	Bridgeport.
Thomson, Edward Sanford,	P. & S., N. Y., '92,	New Haven.
Thomson, Hiram Benson,	Trin. Un., Tor., '83,	New London.
Tiffany, Frank Monroe, A.B., Amherst, '91,	Univ. Pa., '96,	Stamford.
Tingley, Witter Kinney,	Bellevue, '86,	Norwich.
Tinker, William Richard,	Univ. N. Y., '80,	S. Manchester.
Topping, Jacob Reed,	Univ. N. Y., '82,	Bridgeport.
Townsend, Charles Rodman,	Albany, '86,	Bridgeport.
Townsend, George Hodgson,	Bellevue, '98,	Stony Creek.
Townsend, Jos. Hendley, B.A., Yale, '85,	Yale, '87,	New Haven.
Tracey, William Joseph,	Univ. N. Y., '89,	Norwalk.
Tracy, Andrew William,	McGill, Mont., '73,	Meriden.
Treadway, William A. Buck- ingham,	Univ. Mich., '83,	Stamford.
Trecartin, David Munson,	Dartmouth, '94,	Bridgeport.
Tudor, Mary Starr,	Women's Med. Coll., Phila., '83,	South Windsor.
Tukey, Frank Martin, B.A., Bowdoin, '91,	Harvard, '94,	Bridgeport.
Turner, Arthur Robert, A.B., Amherst, '84,	Univ. Paris, '94,	Norwalk.
Turner, Sylvester Wooster, B.A., Yale, '42,	Yale, '46,	Chester.
Tuttle, Albert Lake,	Albany, '88,	Milford.
Tuttle, Charles Ailing, Ph.B., Yale, '88,	Yale, '91,	New Haven.
Tyler, Jr., Heman Augustin,	Yale, '98,	Hartford.

ALPHABETICAL LIST OF MEMBERS.

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Name.	Medical Graduation.	P. O. Address.
VanStrander, William Harold,	Univ. Vt., '00,	Hartford.
Van Vleet, Peter P.,	Bellevue, '89,	Stamford.
Varno, Henry George,	P. & S., Balt., '82,	Thompsonville.
Verdi, William Francis,	Yale, '94,	New Haven.
VonTobel, Albert Eugene, B.A., Yale, '96,	Yale, '99,	Meriden.
Wade, John Alexander,	Bellevue, '93,	Danbury.
Wadhams, Sanford Hosea,	Yale, '96,	Torrington.
Wadhams, Noah Samuel, Ph.B., Yale, '97,	Yale, '00,	Goshen.
Walte, Frank Louis,	Bellevue, '83,	Hartford.
Walsh, Frederick William,	P. & S., Balt., '85,	Rockville.
Walsh, Thomas Patrick,	Univ. Vt., '02,	Middletown.
Warner, Charles Norton,	Jefferson, '86,	Litchfield.
Warner, George Howell,	Yale, '97,	Bridgeport.
Wason, David Boughton,	P. & S., N. Y., '00,	Bridgeport.
Waters, John Bradford,	Univ. Vt., '90,	Hartford.
Watson, Wilbur Seymour,	L. I. Hosp. Coll., '87,	Danbury.
Weaver, William Myron,	Yale, '97,	Hartford.
Webb, Daniel Meigs, B.A., Yale, '46,	Yale, '49,	Madison.
Weidner, Calvin,	Univ. Indianapolis, '93,	Manchester.
Weir, Janet Marshall,	Queen's Un., Kingston, Ont., '91,	Hartford.
Welch, Edward Hubbard,	Yale, '76,	W. Winsted.
Welch, George Kellogg,	P. & S., N. Y., '73,	Hartford.
Welch, Harry Little, A.B., Yale, '97,	Yale, '94,	New Haven.
Welch, William Collins,	Yale, '77,	New Haven.
Weldon, John,	Univ. N. Y., '83,	Willimantic.
Weldon, Thomas Henry,	Univ. N. Y., '83,	S. Manchester.
Wellington, William Winthrop,	Univ. Vt., '89,	Terryville.
Wells, Ernest Alden, A.B., Yale, '97,	Johns Hopkins, '01,	Hartford.
Wheeler, Franklin, B.A., Yale, '47; M.A., Yale, '67,	P. & S., N. Y., '62,	Farmington.
Wheeler, Frank Henry, B.A., Yale, '80,	Yale, '82,	New Haven.
Wheeler, Lewis Hawley,	Yale, '97,	Westport.
White, Benjamin Walker,	L. I. Hosp. Coll., '86,	Bridgeport.
White, Robert Creighton,	Univ. Vt., '89,	Willimantic.
Whiton, Francis Henry,	Dartmouth, '72,	Manchester.
Whittemore, Edw. Lancaster, Ph. B., Yale, '92,	Univ. Va., '94,	New Britain.
Whittemore, Frank Hamilton,	Bellevue, '74,	New Haven.
Wight, George DeWitt,	Bellevue, '87,	Bethel.
Williams Marian Walker, A. B., Redcliffe, '97,	Johns Hopkins, '01,	Hartford.
Williams, Allen Hamilton, A. B., Harvard, '91,	Harvard, '01,	Hartford.
Willmot, Louis Howard,	Univ. N. Y., '91,	Ansonia.
Wilson, Frederick Morse, A.B., Colby, '71,	Harvard, '75,	Bridgeport.
Wilson, John Joseph,	P. & S., Balt., '86,	Bristol.
Wilson, Samuel Allen,	Yale, '52,	Windsor.
Wilson, William Patrick,	P. & S., Balt., '90,	Wallingford.
Wilson, William Virgil,	Yale, '67,	West Haven.
Winchell, Alvered Ezra, A.B., Wesleyan, '67,	P. & S., N. Y., '65,	New Haven.
Winne, William Nelson,	Univ. N. Y., '97,	New Haven.
Winship, Ernest Oliver,	Univ. Vt., '00,	Rockville.
Witter, Orrin Russell,	P. & S., N. Y., '01,	Chaplin.
Witter, William,	Yale, '65,	Norwich.

Name.	Medical Graduation.	P. O. Address.
Wolff, Arthur Jacob,	{ Tex. Med. Coll., '78, { Bellevue, '83, Univ. N. Y., '79,	Hartford. Tariffville.
Wooster, Charles Morris,		
Wordin, Nathaniel Eugene,		
B.A., Yale, '70; Yale, M.A., '72,	Jefferson, '78,	Bridgeport.
Wright, Frank Walden,	Bellevue, '80,	New Haven.
Wright, John Winthrop,		
A.B., Amherst, '77,	Univ., N. Y., '80,	Bridgeport.
Wright, Theodore Goodelle,	Univ. N. Y., '65,	Plainville.
Wurtenberg, William Charles,		
Ph.B., Yale, '89,	Yale, '88,	New Haven.
Young, Charles Bellamy,	P. & S., N. Y., '94,	Middletown.

Members noticing any errors or omissions in any part of this record will please inform the Secretary for correction in future lists.

YALE UNIVERSITY.

DEPARTMENT OF MEDICINE.

The Yale Medical School is a department of Yale University. Students of this Medical School, therefore, have all the advantages of residence in a large university, such as the use of the Libraries, the Gymnasium, the University Dining Hall, and the Museums. They are also admitted to any lectures on matters of current interest.

The curriculum is graded and is based on the assumption that medical sciences are best taught by the same methods as other sciences, namely, by the personal work of the student under the careful supervision of his instructors.

The school has well equipped laboratories, abundantly supplied with materials for instruction and research. The clinical instruction is carried on chiefly at the New Haven Hospital and the New Haven Dispensary. Class instruction in the Hospital is conducted in the Farnam Operating Theater and the Medical Amphitheater recently erected by the University. The New Haven Dispensary now occupies the new University Clinic which has been erected near the Hospital.

The minimum requirement for matriculation is the 'high-school course or its equivalent. For information concerning the curriculum, tuition fees, honors and prizes, see the annual announcement, which will be furnished on application to the Dean.

DEPARTMENT OF MEDICINE.

ARTHUR TWINING HADLEY, PRESIDENT.

HERBERT EUGENE SMITH, M.D., *Dean of the Medical School and Professor of Chemistry.*

CHARLES AUGUSTUS LINDSLEY, M.D., *Professor of the Theory and Practice of Medicine, Emeritus, and Lecturer on Sanitary Science.*

WILLIAM HENRY CARMALT, M.D., *Professor of the Principles and Practice of Surgery.*

THOMAS HUBBARD RUSSELL, M.D., *Professor of Clinical Surgery and Lecturer on Surgical Anatomy.*

RUSSELL HENRY CHITTENDEN, Ph.D., *Professor of Physiology.*

JOHN SLADE ELY, M.D., *Professor of the Theory and Practice of Medicine.*

OLIVER THOMAS OSBORNE, M.D., *Professor of Materia Medica and Therapeutics.*

HENRY LAWRENCE SWAIN, M.D., *Clinical Professor of Laryngology and Otology.*

ARTHUR NATHANIEL ALLING, M.D., *Instructor in Ophthalmology.*

HARRY BURR FERRIS, M.D., *Professor of Anatomy.*

OTTO GUSTAF RAMSAY, M.D., *Professor of Obstetrics and Gynecology.*

RALPH AUGUSTINE McDONNELL, M.D., *Clinical Professor of Dermatology.*

CHARLES JOSEPH BARTLETT, M.D., *Professor of Pathology.*
 YANDELL HENDERSON, Ph.D., *Assistant Professor of Physiology.*

FRANÇOIS BACON, M.D., *Lecturer on Medical Jurisprudence.*
 SAMUEL BENEDICT ST. JOHN, M.D., *Lecturer on Ophthalmology.*
 GEORGE RUBENS SHEPHERD, M.D., *Lecturer on Life Insurance Examinations.*

MAX MAILHOUSE, M.D., *Clinical Lecturer on Neurology.*
 EDWARD MICHAEL MCCABE, M.D., *Clinical Assistant in Ophthalmology.*
 LOUIS BENNETT BISHOP, M.D., *Instructor in Pediatrics.*
 LEONARD WOOLSEY BACON, JR., M.D., *Instructor in Operative Surgery.*
 CHARLES DICKINSON PHELPS, M.D., *Instructor in Physical Diagnosis.*
 FREDERICK STEARNS HOLLIS, Ph.D., *Instructor in Chemistry.*
 ROBERT ELLSWORTH PECK, M.D., *Instructor in Neurology.*
 WILLIAM SPRENGER, M.D., *Instructor in the Uses of X-Rays.*
 SAMUEL MOWBRAY HAMMOND, M.D., *Instructor in Clinical Medicine.*
 ERNST HERMAN ARNOLD, M.D., *Instructor in Orthopaedic Surgery.*
 ALLEN ROSS DIEFENDORF, M.D., *Lecturer on Psychiatry.*
 FREDERICK NOYES SPERRY, M.D., *Demonstrator of Anatomy and Instructor in Laryngology and Otology.*

EDWARD FRANCIS MCINTOSH, M.D., *Instructor in the Diseases of the Stomach*

CLARENCE GILMAN SPALDING, Ph.B., *Demonstrator of Pharmacy.*
 THOMAS GEORGE SLOAN, M.D., *Instructor in Anesthesia.*
 THOMAS VINCENT HYNES, M.D., *Instructor in Obstetrics.*
 LEONARD CUTLER SANFORD, M.D., *Assistant in the Surgical Clinic.*
 FREDERICK COURTNEY BISHOP, M.D., *Clinical Assistant in Laryngology and Otology.*

WILLIAM HENRY CUSHING, M.D., *Assistant in the Medical Clinic.*
 HENRY FREDERICK KLENKE, M.D., *Clinical Assistant in Dermatology.*
 ALFRED GOLDSTEIN NADLER, M.D., *Clinical Assistant in Pediatrics.*
 HARRY MERRIMAN STEELE, M.D., *Assistant in Pediatrics and in Pathology.*
 HARRY LITTLE WELCH, M.D., *Assistant in Gynecology.*
 WILLIAM SAMUEL BARNES, M.D., *Assistant in the Medical Clinic.*
 WILLIS HANFORD CROWE, M.D., *Clinical Assistant in Ophthalmology.*
 WILLIS ELLIS HARTSHORN, M.D., *Assistant in Pathology and in the Surgical Clinic.*

RICHARD FOSTER RAND, M.D., *Assistant in the Gynecological and Surgical Clinics.*

PAUL BERNARD KENNEDY, M.D., *Assistant in the Medical Clinic.*
 WILLIAM NELSON WINNE, M.D., *Clinical Assistant in Pediatrics.*
 CARL WILLIAM HENZE, M.D., *Assistant in the Medical Clinic.*



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